

L series remote IO

User manual

Wuxi Xinje Electric Co., Ltd.

Data No. PL04 20211110EN 3.5

This manual contains basic precautions to ensure personal safety and protect this product and connected equipment. These precautions are highlighted in the manual with warning triangles. For other unfinished matters, please follow the basic electrical operation procedures.



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Statement of responsibility

We have checked that the contents of this manual are consistent with the hardware and software described, because errors are inevitable, we cannot guarantee complete consistency. However, we will often check the data in the manual and make necessary corrections in future editing. Welcome your valuable comments.

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1. System overview

Remote I/O is composed of Xinje LC3-AP adapter and XL series modules. Among them, LC3-AP adapter supports EtherCAT bus type master stations, such as Xinje XDH, XLH, XG2 and XS3 series master stations, which supports up to 32 slave stations. By matching different types and quantities of I/O modules, it can meet the different actual needs of users. Single module has stable performance, beautiful appearance, small size and high cost performance. The screw free terminal is adopted, which is simple and reliable, reduces the workload of on-site installation and saves installation time.

At present, the remote I/O module has been widely used in various industrial automation occasions. The product has high stability, strong anti-interference ability and excellent performance, which has been highly appreciated by users.



1-1. System indicator

The system indicator is defined as follows:

Abbreviation	Meaning
PWR	The power indicator lights up when the power system is normal
RUN	The operation indicator light is on when the system is in normal operation
ERR	The system fault indicator light is on when the system fails

Run indicator

RUN indicator	Status	Notes	
OFF	INT	Initialization	
Slow flashing	PRE-OP Pre-operation		
Single flashing	Single flashing SAFE-OP Safe operation		
ON	OP	Operation status	
Fast flashing	BOOTSTRAP or loading the EEPROM	Downloading EEPROM	

Error indicator

ERR indicator	Notes	Solution	
OFF	No Error		
Fast flashing	EEDDOM loading amon	1. Power on again	
Fast hasning	EEPROM loading error	2. Update EEPROM	
		1. Check the configuration of master	
Single flashing	Al status register error	station and upper computer	
		2. Reactivate the configuration	
		1. Check whether the connection between	
Dauble fleching	Process data watchdog timeout	slave station and master station is intact	
Double flashing		2. Check whether the master station reports	
		an error	
		1. Check whether the connection between	
ON		slave station and master station is intact	
	PDI watchdog timeout	2. Check whether the master station reports	
		an error	
		3. Check the site for excessive interference	
		4. Power on again	

1-2. System structure

The wiring of Xinje remote IO system is very simple. Thanks to the star topology of EtherCAT, it can be replaced by a simple linear structure. EtherCAT does not need hubs and switches, it can easily realize the cascade of multiple slave stations, so the consumption of cables and bridges is greatly reduced, and the workload of connection design and joint calibration is also greatly reduced, saving time and cost in the process of installation and commissioning. It is recommended to use linear connection method for EtherCAT bus wiring. The wiring mode is shown in the figure below:



*Note: Follow the principle of bottom in and top out when connecting.

Note:

(1) The two communication network ports of the adapter follow the principle of "bottom in and top out", that is, the EtherCAT master station must be connected with the bottom network port of the first adapter, and then the top network port of the first adapter is connected with the bottom network port of the second adapter, and so on.
 (2) The communication transmission process will inevitably be affected by the surrounding electromagnetic environment. It is recommended to use CAT5e network cable, which can also be purchased from our company.

1-3. EMC

Electromagnetic compatibility (EMC) refers to the ability of electrical equipment to operate normally in its electromagnetic environment without disturbing the environment. The following table describes the standards or specifications that should be followed by all products of L series remote I / O modules.

Electromagnetic compatibility - Immunity			
electrostatic discharge IEC61000-4-2 Contact discharge: ±4kV			
	Air discharge: ±8kV		
Electrical fast transient burst	Power cable: 2kV, 5kHz		
IEC61000-4-4	Signal calbe 2kV, 5kHz (I/O coupling clamp)		
	1kV, 5Hz (communication coupling clamp)		
Surge IEC61000-4-5	Power cable 2kV, 5kHz (asymmetric)		

1-4. Environmental conditions for transportation, storage and operation

Environmental conditions - transportation and storage		
Temperature	-40°C~70°C	
Atmospheric	1080hPa~660hPa (the corresponding height is -1000m~+3500m)	
pressure		
Relative humidity	10%~95%RH, no condensation	
	Environmental conditions - working	
Temperature	Horizontal installation: 0°C~55°C	
	Vertical installation: 0°C~40°C	
Atmospheric	1080hPa~795hPa (the corresponding height is -1000m~+2000m)	
pressure		
Relative	10%~95% RH, no condensation	
humidity		
Harsh	Low salt fog, humidity, dust fog and other environments	
environment	SO2<0.5ppm, relative humidity <60% RH, no condensation	
pollutant	H2S<0.1ppm, relative humidity <60% RH, no condensation	
concentration		

2. LC3-AP adapter module

LC3-AP adapter module supports EtherCAT bus communication protocol and can realize seamless connection with mainstream PLC. A single adapter module can be connected with up to 16 I/O modules and can support up to 512 signal points. A variety of status diagnosis functions and status indicator lights are designed. The screw free terminal is adopted, which is convenient and reliable for wiring, and the oblique 45 degree port is designed to reduce the stress on the port and increase the reliability of the product. Through the dialing buttons on both sides of the module, multiple modules can be fixed to each other to increase the seismic performance of the system. The standard DIN35 guide rail is adopted for installation.

2-1. Dimension

(Unit: mm)



2-2. Technical specification

]	Item	Contents
	Using	No corrosive gas
	environment	
	Input power	DC24V±10%
	supply voltage	
	Working	0°C~55°C
General	temperature	
	Environment	5%~95%RH
	humidity	
	Installation	Directly installed on the guide rail of DIN46277 (35mm wide)
	Ground	The third kind of grounding (not common grounding with strong
		current system)
Communication	Bus protocol	EtherCAT

	Interface type	Industry Ethernet
	Connection	2*RJ45
	mode	
	Communication	100Mb/s
	speed	
	Rated voltage	DC24V
	Allowable	DC21.6V~26.4V
	voltage range	
Dowor gupply	Input current	120mA DC24V
Power suppry	Allowable	10ms DC24V
	instantaneous	
	power off time	
	Impulse current	10A DC26.4V

2-3. Electrical wiring diagram



2-4. Installation steps

1. Check the installation environment

Check whether the installation site of special function modules is appropriate.

2. Installation preparation

Prepare for the installation of special modules.

3. Installation module

Install the module on the right side of the adapter.

4. Debug

Check that the module is installed correctly.

Do not install in the following environments:

- (1) Direct sunlight place
- (2) Places where the ambient temperature exceeds $0\sim 50^0 C$
- (3) Places with ambient humidity exceeding $35 \sim 85\%$ RH
- (4) Places where condensation occurs due to rapid temperature changes

- (5) Places with corrosive and combustible gases
- (6) Places with much dust, salt, iron filings and oil fume
- (7) Places directly affected by vibration and impact
- (8) Places for spraying water, oil, medicine, etc
- (9) Place where strong magnetic field and electric field are generated

Installation requirements:

XL series analog input / output and temperature control module can be installed on the right side of L series adapter and expansion module. DIN46277 guide rail (35mm wide) can be used for installation.

• Install with DIN46277 guide rail



The basic unit and extension module are installed on the guide rail DIN46277mm (width 35mm). For removing, just pull down the assembly hook of DIN rail and remove the product.

Wiring requirements:

Except that XL series 32 point expansion module needs to use external terminal block for wiring, other modules can directly insert the cable into the corresponding wiring hole.

Note:

- Please confirm the specification and select the appropriate module.
- During screw hole processing and wiring, please do not let chips and wire chips fall into the module.
- Before connecting, please reconfirm the specifications of the module and connecting equipment to ensure that there is no problem.
- When connecting, please pay attention to whether the connection is firm. If the connection falls off, it will cause faults such as incorrect data and short circuit.
- Installation, wiring and other operations must be carried out after all power supplies are cut off.

3. I/O module XL-EnXmY

3-1. Features and specifications

LC3-AP adapter can externally expand XL-EnXmY I/O modules, and each adapter can expand up to 16 modules. With rich types of modules and small shape, it provides the possibility for more input and output points and meets the actual production needs. When using, pay attention to the maximum PDO byte limit of the master station.



Name	Function			
Fixing clip	It is used	It is used to fix the adapter and expansion module		
Module model	Model o	f this special function module		
Expansion port	Connect	ing other expansion modules		
I/O terminals	The term	ninal used to connect digital input, output and external equipment, detachable		
Power, run indicator	PWR	This indicator is on when the module has power supply		
	COM This indicator is on when the module communication port communicates normally			
	ERR	 When there is an error in the module, the indicator is always on or flashing (red) When ERR light is always on, it indicates that the module has serious application errors and cannot be used. The use mode must be adjusted, and the PLC body is switched to stop state. When ERR light flashes, it indicates that the module has application error, works abnormally and has abnormal data but the PLC body is still run 		
I/O indicator	Whether the input and output are on indicator			

3-1-1. Model list

Мо	del	Exection	DDO huto numbor
NPN input	PNP input	Function	PDO byte number
XL-E8X8YR	XL-E8PX8YR	8 channels digital input, 8 channels	2 bytes input, 2 bytes
		relay output	output
XL-E8X8YT	XL-E8PX8YT	8 channels digital input, 8 channels	2 bytes input, 2 bytes
		transistor output	output
XL-E16X	XL-E16PX	16 channels digital input	2 bytes input
XL-E16YR	-	16 channels relay output	2 bytes output
XL-E16YT	-	16 channels transistor output	2 bytes output
XL-E16X16YT-A	XL-E16PX16YT-A	16 channels digital input, 16 channels	2 bytes input, 2 bytes
		transistor output	output
XL-E32X-A	XL-E32PX-A	32 channels digital input	4 bytes input
XL-E32YT-A	-	32 channels transistor output	4 bytes output

3-1-2. Module specification

Item	Specification
Input power supply voltage	DC24V±10%
Using environment	No corrosive gas
Ambient temperature	0°C~60°C
Ambient humidity	5~95%
Installation	Directly installed on the guide rail of DIN46277 (width 35mm)

3-2. Terminals

(1) XL-E8X8YR, XL-E8PX8YR, XL-E8X8YT, XL-E8PX8YT terminal blocks are arranged as follows:



(2) XL-E16X, XL-E16PX terminal blocks are arranged as follows:

	\oslash	Ø	Ø	Ø	Ø	-0	Ø	Ø	Ø	\oslash	Ø	Ø	Ø	Ø	Ø	0	Ø	Ø	Ø	Ø
l	Ħ	Ħ	Ħ	Ħ	Ħ	Ħ	Ħ	Ħ	Ħ	E	H	Ħ	Ħ	Ħ	Ħ	Ħ	Ħ	Ħ	Ħ	Ħ
	ġ	Q	Xo	X1	Χ2	X3	ХĄ	χs	χŝ	X7	Ę	1 1	X 10	Хħ	X12	X13	X14	X15	X16	X17

(3) XL-E16YR, XL-E16YT terminal blocks are arranged as follows:

1		<u>ې</u>	<u>کا</u>	Y2 []	<u>~</u>		<u>_</u> 4×	<u>7</u> 8	<u>چ</u>	5	1 2	790	711	<u>2</u>	Y13	<u> </u>	۲ <u>اها</u>	Y15	Y16	717	
L	H	Ħ	Ħ	H	Ħ	H	Ħ	Ħ	H	H	Ħ	H	H	H	H	H	H	H	H	H	
	\oslash	\oslash	Ø	Ø	Ø	0	\oslash	\oslash	\oslash	\otimes	Ø	\oslash	\oslash	Ø	\oslash	-0	\oslash	\oslash	\oslash	\oslash	

(4) XL-E16X16YT-A, XL-E16PX16YT-A terminal blocks are arranged as follows:

L+ X0 X1 X2 X3 • X10 X11 X12 X13 COMO Y0 Y1 Y2 Y3 COM2 Y10 Y11 Y12 Y13

(5) XL-E32X-A, XL-E32PX-A terminal blocks are arranged as follows:

 L+
 X0
 X1
 X2
 X3
 •
 X10
 X11
 X12
 X13
 •
 X20
 X21
 X22
 X23
 •
 X30
 X31
 X32
 X33

 M
 X4
 X5
 X6
 X7
 •
 X14
 X15
 X16
 X17
 •
 X24
 X25
 X26
 X27
 •
 X34
 X35
 X36
 X37

(6) XL-E32YT-A terminal blocks are arranged as follows:

 COM0
 Y0
 Y1
 Y2
 Y3
 COM2
 Y10
 Y11
 Y12
 Y13
 COM4
 Y20
 Y21
 Y22
 Y23
 COM6
 Y30
 Y31
 Y32
 Y33

 COM1
 Y4
 Y5
 Y6
 Y7
 COM3
 Y14
 Y15
 Y16
 Y17
 COM5
 Y24
 Y25
 Y26
 Y27
 COM7
 Y34
 Y35
 Y36
 Y37

Note: when connecting the X terminal, external DC24V power supply is required. Please connect 24V + to the L + terminal and 24V - to the M terminal. In addition, the M terminal is also the common terminal of the input point X, and the input wiring of the module is the same as that of the L body.

3-2-1. Connector specifications

XL-E8X8YR, XL-E8PX8YR, XL-E8X8YT, XL-E8PX8YT, XL-E16X, XL-E16PX, XL-E16YR, XL-E16YT, when wiring the module, its connector shall meet the following requirements:

(1) Strip length 9mm

(2) Flexible wire with tubular bare end 0.25-1.5 mm²

(3) Flexible wire with tubular pre-insulated ends 0.25-0.5 mm²

3-3. I/O address

The address of the input and output terminals of the XL series expansion module is as follows:

Take XL-E16X16Y module input terminals as an example.

Select the corresponding XY extension module and click IO mapping to view the address mapped by XY. The address starts from HM10000 by default. You only need to control the HM address of XY mapping to control the module input and output.

扫描 更新	启动参数 [10映	时 COE-On	ine					
主站	起始地址: 字	映射: HD	✓ 位映射: № √ 偏移	: 10032				
PLC Master	索引:子索引	名称		地址	类型	位长	数值	
	#x7000:01	YO		HM10032	BOOL	1	ON	
人站	#x7000:02	Ψ1		HM10033	BOOL	1	ON	
StationID:0 Alias:0 LC3-AP	-#v7000:03	¥2		HW10034	BOOL	-	ON CON	
_XL-E16X16YT	#x7000:04	12		HW10035	BOOL	-	01	
-StationID:1 Alias:0 LC3-AP	#x7000:05	VA VA		HW10036	BOOL	1	ON	
XL-E16X16YT	#x1000.05	14		10030	POOL	1	ON	
-StationLD:2 Alias:1 XINJE-DS5C CoE Drive	#x1000.08	10		10037	BOOL	1	ON	
-StationID:3 Alias:0 LC3-AP	#x7000.07	10		AM10038	BOOL	1	UN	
_XL-E16X16YT	-#x 7000:08	17		HM10039	BOOL	1	UN	
-StationID:4 Alias:0 LC3-AP	-#x7000:09	¥10		HM10040	BOOL	1	ON	
-XL-E4DA	-#x7000:0A	¥11		HM10041	BOOL	1	ON	
-XL-E8AD-A	-#x7000:0B	¥12		HM10042	BOOL	1	ON	
-XL-ESAD-A	-#x7000:0C	¥13		HM10043	BOOL	1	ON	
-XL-ESAD-A	-#x7000:0D	¥14		HM10044	BOOL	1	ON	
-XL-ESAD-A	-#x7000:0E	¥15		HM10045	BOOL	1	ON	
-XL-ESAD-A	-#x7000:0F	¥16		HM10046	BOOL	1	ON	
-XL-ESAD-A	#x7000:10	¥17		HM10047	BOOL	1	ON	
VI_ROAD_A	-#v6000:01	XO		HW10048	BOOT.	1	OFF	
VI - ROAD-A	#v6000:02	¥1		HW10049	BOOL	-	OFF	
VI-FSAD-A	#x6000:02	¥2		HW10050	BOOL	1	OFF	
-XI_FSAD-A	#x6000.03	82		10050	BOOL	1	OFF	
-YL-FSAD-A	#x6000.04	4.5		AM10051	BOOL	1	OFF	
-XIESAD-A	#x6000:05	X4		AM10052	BOOL	1	UFF	

3-4. External wiring

3-4-1. Input terminal wiring





+24V

3-wire (NPN) proximity switch wiring diagram

2-wire (NO/NC) proximity switch wiring diagram













2-wire (NO/NC) proximity switch wiring diagram

3-4-2. Output terminal wiring



Relay type



Transistor type

3-4-3. External terminal block

XL-E16YT-A, XL-E32X-A, XL-E32PX-A, XL-E16X16YT-A, XL-E16PX16YT-A, XL-E32YT-A need external terminal block. The following is the terminal block and connection cable models.

Module	Terminal block	Adaptive cable
XL-E16YT-A	JT-E16YT-A	
XL-E32X-A	IT E22V	10.7522 NINIOS (0.5)
XL-E32PX-A	J1-E32A	JC-1E32-NN05 (0.5m)
XL-E16X16YT-A	IT E16V16VT	JC-1E32-NN10(1.011) IC TE32 NN15(1.5m)
XL-E16PX16YT-A	J1-E10A1011	$JC-1E_{2}-1N13$ (1.311)
XL-E32YT-A	JT-E32YT	

Terminal block dimension

(Unit: mm)



Terminal block wiring method

When wiring, press the spring switch with a small screw driver, insert the wire into the corresponding socket, and release the spring switch. The terminal block requires the length of wire peeling to be 1.5cm.

Adaptive cables

When connecting the terminal block externally, it needs to cooperate with the use of connecting cables. Xinje provides JC-TE32-NN05, JC-TE32-NN10, JC-TE32-NN15 cables with different lengths and specifications for users to choose and buy. Please note that when connecting, one end (that the model is wrapped near the transparent heat shrinkable tube) connects with the module, and the other end is connected to the terminal block, which can not be reversed!!!

Wiring diagram:



3-5. Module parameters

The positive and negative logic is adjustable and the filtering time is adjustable. Taking 16X16Y module as an example, the configuration method is as follows:

112 0	> Ethercat参数配置					×
王曜	Ethercat参数配置 注因描 更新 主込 FLC Master 从法 StationID:0 Alias:0 LC3→AP CL-21021097 2 LC3→AP してよった21021097 2 LC3→AP している102107 1 LC3→AP している			标志 円 円 円 円 日	数値 512く 0 0 0 0	· · · · · · · · · · · · · · · · · · ·
		-06 -07 -08 -09 -0A -08 -0C	17逻辑,20逻辑,25逻辑,24逻辑 13逻辑,11逻辑,210逻辑,210逻辑 17逻辑,11逻辑,211逻辑,211逻辑 17逻辑,222番,222番,11逻辑,11逻辑 17逻辑,222番,223番,112逻辑,112逻辑 112逻辑,116逻辑,216逻辑,114逻辑	14 14 14 14		
- 型 以太阿口 - 一部 許不参数 - 回都 扩展後決 - 回都 取機決 - 回 和機決 - 回 和機決 - 回 和機決 - 回 和機決 - 一回 和機力 - 一回 和 た で 1	- XI-283AD-X - XI-283AD-X - XI-283AD-X - XI-283AD-X - XI-283AD-X - XI-283AD-X - XI-283AD-X - XI-283AD-X - XI-283AD-X	•				5
→ IIII WeOX IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII				1 1 1	取り	激活 磺定 取消

Step 1: click EtherCAT

Step 2: select the module

Step 3: select COE-Online

Step 4: select positive or negative logic and filter time

Step 5: after setting, click ok, then cut the power and power on again for the adapter to make the settings effective

Note: please use the XDPpro software version 3.7.0 and up.

3-5-1. #x5000 bit definition

#x5000: the specific allocation of bytes in each module information is as follows:

• XL-E8X8Y

	Byte0	Byte1	Byte2	Byte3	Byte4	Byte5		
Bit7			-	-	-	-		
Bit6			X3 logic	X7 logic	Y3 logic	Y7 logic		
Bit5			-	-	-	-		
Bit4	X0~X3 filter time	X4~X7 filter time	X2 logic	X6 logic	Y2 logic	Y6 logic		
Bit3			-	-	-	-		
Bit2			X1 logic	X5 logic	Y1 logic	Y5 logic		
Bit1			-	-	-	-		
Bit0			X0 logic	X4 logic	Y0 logic	Y4 logic		
	Filter time (unit: ms)							
Note	Setting range: 1~5, 10,	15, 20, 25, 30, 35, 40,	Note: 0 is positive logic, 1 is negative logic					
	45, 50. Default value is	s 10						

• XL-E16X

	Byte0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7
Bit7					-	-	-	-
Bit6			X10~X13 filter time	X14~X17 filter time	X3	X7	X13	X17
	\mathbf{v}_0 \mathbf{v}_2	X4~X7			logic	logic	logic	logic
Bit5	$\Lambda 0 \sim \Lambda 3$	filter			-	-	-	-
Bit4	inter time	time			X2	X6	X12	X16
					logic	logic	logic	logic
Bit3					-	-	-	-

Bit2			X1	X5	X11	X15
			logic	logic	logic	logic
Bit1			-	-	-	-
Bit0			X0	X4	X10	X14
			logic	logic	logic	logic
	Filter time (unit: ms)					
Note	Setting range: 1~5, 10, 15, 20, 25, 30, 35	5, 40, 45,	Note: 0 is	s positive logi	ic, 1 is negativ	ve logic
	50. Default value is 10					

• XL-E16X16Y

	Bit0	Bit1	Bit2	Bit3	Bit4	Bit5	Bit6	Bit7	Notes
Byte0			Х	0~X3	filter time				Filter time (unit: ms)
Byte1			Х	4~X7 1	filter time				Setting range: 1~5, 10, 15, 20, 25, 30,
Byte2			X1	0~X13	filter tim	e			35, 40, 45, 50. Default value is 10
Byte3			X1	4~X17	filter tim	e			
Byte4	X0	-	X1	-	X2	-	X3	-	
	logic logic logic logic								
Byte5	X4	-	X5	-	X6	-	X7	-	
	logic		logic		logic		logic		
Byte6	X10	-	X11	-	X12	-	X13	-	Note: 0 is positive logic, 1 is negative
	logic		logic		logic		logic		logic
Byte7	X14	-	X15	-	X16	-	X17	-	
	logic		logic		logic		logic		
Byte8	Y0	-	Y1	-	Y2	-	Y3	-	
	logic		logic		logic		logic		
Byte9	Y4	-	Y5	-	Y6	-	Y7	-	
	logic		logic		logic		logic		
Byte10	Y10	-	Y11	-	Y12	-	Y13	-	
	logic		logic		logic		logic		
Byte11	Y14	-	Y15	-	Y16	-	Y17	-	
	logic		logic		logic		logic		

• XL-E16Y/XL-E32Y

	Bit0	Bit1	Bit2	Bit3	Bit4	Bit5	Bit6	Bit7	Notes
Byte0	Y0 logic	-	Y1 logic	-	Y2 logic	-	Y3 logic	-	
Byte1	Y4 logic	-	Y5 logic	-	Y6 logic	-	Y7 logic	-	
Byte2	Y10 logic	-	Y11 logic	-	Y12 logic	-	Y13 logic	-	Note: 0 is
Byte3	Y14 logic	-	Y15 logic	-	Y16 logic	-	Y17 logic	-	positive logic, 1
Byte4	Y20 logic	-	Y21 logic	-	Y22 logic	-	Y23 logic	-	is negative
Byte5	Y24 logic	-	Y25 logic	-	Y26 logic	-	Y27 logic	-	logic
Byte6	Y30 logic	-	Y31 logic	-	Y32 logic	-	Y33 logic	-	
Byte7	Y34 logic	-	Y35 logic	-	Y36 logic	-	Y37 logic	-	

• XL-E32X

	Bit0	Bit1	Bit2	Bit3	Bit4	Bit5	Bit6	Bit7	Note				
Byte0			Х	0~X3 f	ilter tim	ie							
Byte1	X4~X7 filter time												
Byte2			X1	0~X13	filter ti	me			Filter time (unit: ms) Setting range: 1~5, 10, 15, 20, 25, 30, 35, 40,				
Byte3			X1-	4~X17	filter ti	me							
Byte4		X20~X23 filter time							45, 50. Default value is 10				
Byte5			X2	4~X27	filter ti	me							

	Bit0	Bit1	Bit2	Bit3	Bit4	Bit5	Bit6	Bit7	Note
Byte6	X30~X33 filter time								
Byte7			X3	4~X37	filter ti	me			
Byte8	X0	-	X1	-	X2	-	X3	-	
	logic		logic		logic		logic		
Byte9	X4	-	X5	-	X6	-	X7	-	Note: 0 is positive logic, 1 is negative logic
	logic		logic		logic		logic		
Byte10	X10	-	X11	-	X12	-	X13	-	
	logic		logic		logic		logic		
Byte11	X14	-	X15	-	X16	-	X17	-	
	logic		logic		logic		logic		
Byte12	X20	-	X21	-	X22	-	X23	-	
	logic		logic		logic		logic		
Byte13	X24	-	X25	-	X26	-	X27	-	
	logic		logic		logic		logic		
Byte14	X30	-	X31	-	X32	-	X33	-	
	logic		logic		logic		logic		
Byte15	X34	-	X35	-	X36	-	X37	-	
	logic		logic		logic		logic		

Note:

In case of positive logic, the input terminal X is on, the X terminal signal is on, the input terminal X is off, and the X terminal signal is off.

In case of negative logic, the input terminal X is on, the X terminal signal is off, the input terminal X is off, and the X terminal signal is on.

The default is positive logic, which generally does not need to be modified.

3-6. Dimension

Please refer to the following figure for the outline and dimensions of XL series $8 \sim 16$ points I/O module: (Unit: mm)



Please refer to the figure below for the outline and dimensions of XL series 32 points I/O module: (unit: mm)



4. Analog I/O module XL-E4AD2DA

4-1. Features and specification

XL-E4AD2DA analog input and output module converts 4 analog input values into digital values and 2 digital values into analog values, and transmits them to the PLC main unit for real-time data interaction with the PLC main unit.



4-1-1. Features

- 4-channel analog input: voltage input or current input is optional
- 14 bits high-precision analog input
- 2-channel 12 bits analog output
- As a L series expansion module, LC3-AP adapter can connect up to 16 modules
- Output 6 bytes and input 36 bytes, a total of 42 bytes. When using, pay attention to the maximum PDO byte limit of the master station.

4-1-2. Specification

Itam	An	alog input	Analog output		
Item	Voltage input Current input		Voltage output	Current output	
Analog input	0~5V, 0~10V -5~5V, -10~10V	0~20mA, 4~20mA, -20~20mA	-		
Max input range	DC±15V	-40~40mA		-	
Analog output		-	0~5V, 0~10V -5~5V, -10~10V (external load resistor 2KΩ~1MΩ)	0~20mA, 4~20mA (external load resistor less than 500Ω)	
Digital input		-	12-bit binary value (0~4095 or -2048~2047)		
Digital output	14-bit (0~16383	binary value 3 or -8192~8191)	-		
Resolution	1/163	383 (14-Bit)	1/4095 (12-Bit)		
Comprehensive accuracy			1%		
Conversion speed	2m	s/channel	2ms/channel		
Module power		10%, 150mA			

supply	
Installation mode	Directly installed on the guide rail of DIN46277 (width 35mm)

4-2. Terminals

4-2-1. Terminal arrangement



4-2-2. Terminal signals

Nam	ie	Function
	PWR	This indicator is on when the module has power supply
	COM	This indicator is on when the module communication port communicates normally
	ERR	When there is an error in the module, the indicator is always on or flashing (red)
Indicator		When ERR light is always on, it indicates that the module has serious application errors and
		cannot be used. The use mode must be adjusted, and the PLC body is switched to stop state.
		When ERR light flashes, it indicates that the module has application error, works
		abnormally and has abnormal data, but the PLC body is still run.
	L+	External power supply DC24V+
	М	External power supply DC24V -
	C0	VI0, AI0 input ground
	VI0	Channel 1 AD voltage input
	AI0	Channel 1 AD current input
	C1	VI1, AI1 input ground
	VI1	Channel 2 AD voltage input
	AI1	Channel 2 AD current input
	C2	VI2, AI2 input ground
Terminals	VI2	Channel 3 AD voltage input
Terminais	AI2	Channel 3 AD current input
	C3	VI3, AI3 input ground
	VI3	Channel 4 AD voltage input
	AI3	Channel 4 AD current input
	C0	VO0, AO0 output ground
	VO0	Channel 1 DA voltage output
	AO0	Channel 1 DA current output
	C1	VO1, AO1 output ground
	VO1	Channel 2 DA voltage output
	AO1	Channel 2 DA current output

4-2-3. Wire connector specification

When wiring the module, its connector shall meet the following requirements:

- (1) Stripping length 9mm
- (2) Flexible wire with tubular bare end 0.25-1.5mm²
- (3) Flexible wire with tubular pre-insulated end 0.25-0.5 mm²

4-3. I/O address

XL series analog module does not occupy the I/O unit, and the converted value is directly sent to the mapped register address. The register definition number corresponding to the channel is as follows:

站	起始地址: 字明	県射: HD ∨ 位映射: HM ∨	偏移: 12532				
L Master	索引:子索引	名称	地址		位长	数值	
	+-#x7000:01	СНО	HD12532	INT	16	0	
站	^ +-#x7000:02	CH1	HD12534	INT	16	0	
-XL-ESAD-A	-#x7000:03	YO	HW11980	BOOL	1	OFF	
-XL-ESAD-A	#v7000:04	¥1	10111981	BOOL	1	077	
-XL-E8AD-A	#x7000:05	¥2	HW11982	BOOL	1	OFF	
-XL-ESAD-A	#x7000:06	A.5	10111083	BOOL	1	OFF	
-XL-E8AD-A	#= 7000:07	15	10011004	POOL	1	OFF	
-XL-E8AD-A	#27000.07	14	10011304	BOOL	1	OFF	
-XL-E8AD-A	#x1000.08	10	1010500	DUUL	1	0.	
-XL-ESAD-A	€-#x6000:01	CHU	AU12536	INI	16	0	
XL-ESAD-A	tel=#x60000∶02	CHI	HU12538	INI	16	U	
VI_ROAD_A	te-#x6000∶03	CH2	HD12540	INT	16	0	
VI-RSAD-A		СНЗ	HD12542	INT	16	0	
XI-FSAD-A	€-#x6000:05	Reserve	HD12544	INT	16	0	
-XI-RSAD-A	€ #x6000:06	Reserve	HD12546	INT	16	0	
-XL-ESAD-A	€-#x6000:07	Reserve	HD12548	INT	16	0	
StationID:9 Alias:0 LC3-AP	⊕- # x6000∶08	Reserve	HD12550	INT	16	0	
KL-E4AD2DA	⊕-#x6000:09	Reserve	HD12552	INT	16	0	
StationID:10 Alias:0 LC3-AP	⊕-#x6000:0A	Reserve	HD12554	INT	16	0	
-XL-E4DA	⊕-#x6000:0B	Reserve	HD12556	INT	16	0	
StationID:11 Alias:0 LC3-AP		Reserve	HD12558	INT	16	0	
-XL-E4DA		Reserve	HD12560	INT	16	0	

0x6000: input data. The object dictionary index of the input data of module 1 is 0x6000, 0x6010 for module 2, and so on.

0x7000: output data. The object dictionary index of the input data of module 1 is 0x7000, 0x7010 for module 2, and so on.

Channal	AD signal mapping	Enable bit of channel	Mapping
Channel	address	(turn on the enable bit to use this channel)	address
CH0	HD12536	Y0	HM11980
CH1	HD12538	Y1	HM11981
CH2	HD12540	Y2	HM11982
CH3	HD12542	Y3	HM11983
Channal	DA signal mapping	Enable bit of channel	Mapping
Channel	address	(turn on the enable bit to use this channel)	address
CH0	HD12532	Y4	HM11984
CH0	HD12534	Y5	HM11985

IO mapping register definition: (take above figure as an example)

Note:

(1) Disabling unused channels can improve the scanning speed of input/output.

(2) When the enable bit of input channel is turned off during operation, the corresponding input channel will not collect data. (the data is displayed as 0).

(3) When the enable bit of the output channel is turned off during operation, the corresponding output channel keeps the original data unchanged.

(4) The address of the module mapping is not fixed. It starts from the first module 10000 and continues.

4-4. Working mode

4-4-1. Configuration panel

Please use XDPpro software V3	.7.0 and up to set the parameters.
-------------------------------	------------------------------------

	Ethercat参数配置					×
PLC1						
□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	扫描 更新	启动参数 IO映射	COE-Online 2			
梯形图编程	主姓	高级选项	J			
ld_ 命令语编程	14 No. 1			1		
□ □ 函数功能块	PLC Master	索引:子索引	名称	标志	数值	通讯错误信息
源文件		Ξ− #x5070:00	ConfigurableDataXL=E4AD2DA	rw	>6<	
→ → → → → → → → → → → → → → → → →	从站 ^	-01	AD1-AD2滤波系数(0不滤波,1-254滤	rw	100	
□-EX 函数功能库	-StationID:10 Alias:0 LC3-AP	-02	AD3-AD4滤波系数(0不滤波,1-254滤	rw	0	
- 🦾 系统函数功能库	XL-E4DA	-03	AD2输入, AD1输入	rw	100	
——————————————————————————————————————	-StationID:11 Alias:0 LC3-AP	-04	AD4输入, AD3输入 4	rw	0	
	XL-E4DA	-05	DA2输出, DA1输出	rw	0	
▶ 顺序功能块	-StationID:12 Alias:0 LC3-AP	-06	AD通道 短路/断路/超望程检测	rw	0	
	-XL-ESXSY					
	-XL-E8X8Y					
	-XL-E16X					
	-XL-E16Y					
	-XL-E16X16YT					
1/0 1/0	-XL-E16X16YT	_				
5 TANK	-XL-E4DA					
	-XL-E4AD2DA					
「「「「」」の「「」」	-XL-E4DA					
	-XL-E4DA					
	-XL-ESAD-V					
	-XL-E4DA					
	-XL-E4DA					
— ED ED 模块	-XL-E8AD-A					
- D 4GBOX	-XL-E32X					
UIN EtherCAT	L-XL-E32YT					F
-NC NC	· · · · · · · · · · · · · · · · · · ·			1		
WBOX				H	- 体 下載	· 浙江
				1	_TE 1/\$%	湖泊 明正 駅月
— 🛂 PLC本体信息	1					

Step 1: click EtherCAT

Step 2: choose the module

Step 3: click COE-Online

Step 4: set the AD filter coefficient, AD/DA channel voltage/current mode. Please check the bit definition of #x5000.

Step 5: after setting, click ok, then cut the power and power on again for the adapter to make the settings effective.

Note: The first-order low-pass filtering method uses this sampling value and the last filtering output value to weight to obtain the effective filtering value. The filter coefficient is set to $0 \sim 254$ by the user. The smaller the value, the more stable the data is, but it may lead to data lag. Therefore, when set to 1, the filtering effect is the strongest and the data is the most stable. When set to 254, the filtering effect is the weakest. The default is 0 (no filtering).

4-4-2. Bit definition of #x5000

	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	Note
Byte1		AD filter							
Byte2			I	AD channel 3, 4	4 filter co	pefficient			coefficient
Byte3	Bit7	Bit6 Bit5 Bit4 Bit3 Bit2 Bit1 Bit0						Bit0	It is used to
			AD2					specify the input	
	-	000: 0~	10V 01	0: 0~20mA	-	000: 0~10	0V 010:	0~20mA	range of AD and
		001: 0~	5V 0	11: 4~20mA		001: 0~5	V 011:	4~20mA	DA modules. The
		100: -1	0~10V 110): -20~20mA		100: -10~	10V 110:	-20~20mA	lower 4 bits of 03
		101: -5~5V 101: -5~5V							are the setting
Byte4	Bit7	Bit6 Bit5 Bit4 Bit3 Bit2 Bit1 Bit0							bits of AD
			AD4				AD3		channel 1 and the

Take XL-E4AD2DA as an example to explain the setting method.

	-	000: 0~ 001: 0~	-10V () -5V () 10V 11	010: 0~20mA 011: 4~20mA	-	000: $0 \sim 10$ 001: $0 \sim 5^{-1}$	OV 010: V 011: V10V 110:	0~20mA 4~20mA	upper 4 bits are the setting bits of		
		10010	~5V	020-2011/1		100: -10-	V	-20 -2011/1	lower 4 bits are		
Byte5	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	AD channel 3		
			DA2				DA1		setting.		
	-	000: 0~2	10V	010: 0~20mA	-	000: 0~10)V 010:	: 0~20mA	The upper 4 bits		
		001: 0~5	5V	011: 4~20mA		001: 0~5	V 011:	4~20mA	are the setting		
		100: -1	0~10V			100: -10~	-10V		bits of AD		
		101: -5	~5V			101: -5~5	V		channel 4. The		
Byte6		AD o	channel s	short circuit / oj	pen circu	iit / overtrav	el detection		lower 4 bits of 05 are the setting bits of DA channel 1 and the upper 4 bits are the setting bits of DA channel 2.		

For example: to set the working modes of input channels AD1, AD2, AD3 and AD4 of the first module as $0 \sim 20$ mA, $4 \sim 20$ mA, $0 \sim 10$ V and $0 \sim 5$ V respectively, the filter coefficient of AD channel 1 and channel 2 is set as 254, and the filter coefficient of AD channel 3 and channel 4 is set as 100. The working modes of output DA1 and DA2 channels are $0 \sim 10$ V and $0 \sim 20$ mA respectively.

<u></u> =-#x5070∶00	ConfigurableDataXL-E4AD2DA	rw	>6<	
-01	AD1-AD2滤波系数(0不滤波,1-254滤	rw	254	AD1~AD2 Filter coefficient
-02	AD3-AD4滤波系数(0不滤波,1-254滤	rw	100	AD3~AD4 Filter coefficient
-03	AD2输入, AD1输入	rw	50	AD2 input, AD1 input
-04	AD4输入, AD3输入	rw	16	AD4 input AD3 input
-05	DA2输出, DA1输出	rw	32	DA2 output, DA1 output
-06	AD通道 短路/断路/超量程检测	rw	0	AD channel short circuit/open
				circuit/overtravel detection

As shown in the figure, AD2 input and AD1 input are displayed as decimal 50 and converted to binary as 00110010. AD1 corresponds to 0010 working mode of $0 \sim 20$ mA, and AD2 corresponds to 0011 working mode of $4 \sim 20$ mA.

4-5. External wiring

During external connection, in order to avoid interference, please use shielded wire and ground the shielding layer at a single point.



4-5-1. Voltage single end input

4-5-2. Voltage single end output



4-5-3. Current single end input



The wiring of XL-E4AD2DA current input side is shown in the figure below:



4-5-4. Current single end output



Note: current output no need to connect the DC24V power supply!

4-6. AD conversion diagram



The relationship between input analog quantity and converted digital quantity is shown in the table below:





The relationship between the output digital quantity and its corresponding analog quantity data is shown in the table below:

Note:

(1) When the AD voltage input is suspended, the corresponding ID register is displayed as 16383. When the AD current input is suspended, the corresponding ID register is displayed as 0.

(2) When the input data exceeds K4095, the analog data converted by DA remains unchanged at 5V, 10V or 20mA.

4-7. Dimension

(Unit: mm)



5. Analog input module XL-E8AD-A

5-1. Features and specifications

XL-E8AD-A analog input module converts 8 analog current input values into digital values, transmits them to PLC main unit, and carries out real-time data interaction with PLC main unit.



5-1-1. Features

- 8-channel analog input: current input.
- 14-bit high-precision analog input.
- As an L series expansion module, LC3-AP adapter can connect up to 16 modules.
- Output 2 bytes and input 34 bytes, a total of 36 bytes. When using, pay attention to the maximum PDO byte limit of the master station.

Itom	Analog input					
Item	Current input					
Analog input range	0~20mA, 4~20mA, -20~20mA					
Max input range	-40~40mA					
Digital output range	14-bit binary value (0~16383 or -8192~8191)					
Resolution	1/16383 (14-Bit)					
Comprehensive	10/					
accuracy	1 %0					
Conversion speed	2ms/channel					
Module power supply	DC24V±10%, 150mA					
Installation mode	It is directly installed on the guide rail of DIN46277 (width 35mm)					

5-1-2. Specifications

5-2. Terminals

5-2-1. Terminal arrangement



5-2-2. Terminal signals

Nar	ne	Function							
	PWR	When the module is connected to the power supply, the indicator is always on (green)							
	COM	When the module communication port communicates normally, the indicator light is on							
		(green)							
	ERR	When there is an error in the module, the indicator is always on or flashing (red)							
Indicator		When ERR light is always on, it indicates that the module has serious application errors							
		and cannot be used. The use mode must be adjusted, and the PLC body is switched to stop							
		state.							
		When ERR light flashes, it indicates that the module has application error, works							
		abnormally and has abnormal data, but the PLC body is still run.							
	L+	External power supply DC24V +							
	М	External power supply DC24V -							
	C0	AI0 input ground							
	AI0	Channel 1 AD current input							
	C1	AI1 input ground							
	AI1	Channel 2 AD current input							
	C2	AI2 input ground							
	AI2	Channel 3 AD current input							
Wiring	C3	AI3 input ground							
terminals	AI3	Channel 4 AD current input							
	C4	AI4 input ground							
	AI4	Channel 5 AD current input							
	C5	AI5 input ground							
	AI5	Channel 6 AD current input							
	C6	AI6 input ground							
	AI6	Channel 7 AD current input							
	C7	AI7 input ground							
	AI7	Channel 8 AD current input							

5-2-3. Wire connector specification

When wiring the module, its connector shall meet the following requirements:

- (1) Stripping length 9mm
- (2) Flexible wire with tubular bare end 0.25-1.5mm²
- (3) Flexible wire with tubular pre-insulated end 0.25-0.5 mm²

5-3. I/O address

XL series analog module does not occupy the I/O unit, and the converted value is directly sent to the PLC register. The PLC register definition number corresponding to the channel is as follows:

通り更新	启动参数 10映	b]_OE−Online miat: wn y (☆nhat: ww y (a	課後・ 20148	1		
石			419 ⁻			
C Master	索引:子索引	名称	地址	类型	位长	数值
	#x70D0:01	чо	HM20148	BOOL	1	ON
沾	#x70D0:02	¥1	HM20149	BOOL	1	ON
StationID:10 Alias:0 LC3-AP	-#x70D0:03	¥2	HM20150	BOOL	1	ON
XL-E4DA	#x70D0:04	¥3	HM20151	BOOL	1	ON
StationID:11 Alias:0 LC3-AP	#x70D0:05	¥4	HM20152	BOOL	1	ON
XL-E4DA	-#x70D0:06	¥5	HM20153	BOOL.	1	ON
tationID:12 Alias:0 LC3-AP	-#x70D0:07	Ye	HM20154	BOOL	1	OFF
-XL-ESXSY	_#v7000:08	¥7	HM20155	BOOL	-	077
-XL-26X81	#x7000:00	Reserve	HM20156	BOOL	1	OFF
VI -FIGV	#x70D0:04	Reporte	HW20157	BOOL	1	OFF
-XI-FI6X16VT	#70D0.0R	Preserve	1020159	POOL	1	OFF
_XL_E16X16YT	## 7000:00	Preserve	MI20150	POOL	1	OFF
-XL-E4DA	#x1000.00	Reserve D	10020159	DOOL	1	OFF
-XL-E4AD2DA	#x7000:00	Reserve	JM20160	BOOL	1	077
-XL-E4DA	#x70D0:0E	Keserve	HM20161	BOOL	1	OFF
-XL-E4DA	#x 70D0 : OF	Reserve	HM20162	BOOL	1	OFF
-XL-E8AD-V	-#x70D0:10	Reserve	HM20163	BOOL	1	OFF
-XL-E4DA		СНО	HD20148	INT	16	8002
XL-E4DA		СН1	HD20150	INT	16	8002
-XL-E8AD-A		CH2	HD20152	INT	16	8001
-XL-E32X	⊕-#x60D0:04	СНЗ	HD20154	INT	16	8006
-XL-EJZYI	#x60D0:05	CH4	HD20156	INT	16	4001

🖬 #x60D0:05	CH4	HD20156	INT	16	4001
±−#x60D0:06	Сн5	HD20158	INT	16	4001
	CH6	HD20160	INT	16	0
➡-#x60D0:08	CH7	HD20162	INT	16	0

Note: the reserve channel is a reserved channel, which has no practical significance

Definition number of IO mapping register: (only take above figure as an example)

Channal	AD signal mapping	Enable bit of the channel	Mapping
Channel	address	(Set ON the enable bit to use this channel)	address
CH0	HD20148	Y0	HM20148
CH1	HD20150	Y1	HM20149
CH2	HD20152	Y2	HM20150
CH3	HD20154	Y3	HM20151
CH4	HD20156	Y4	HM20152
CH5	HD20158	Y5	HM20153
CH6	HD20160	Y6	HM20154
CH7	HD20162	Y7	HM20155

Note:

(1) Disabling unused channels can improve the scanning speed of input/output.

(2) When the input enable bit is turned off during operation, the corresponding input channel will not collect data. (data is displayed as 0)

(3) The address of the module mapping is not fixed. It starts from the first module 10000 and continues.

5-4. Working mode

5-4-1. Configuration panel

Please use XDPpro software V3.7.0 and up to configure the module.

ф ,	Ethercat参数配置							×
LC1 , 31程序 『明 地址/原始中纪	· 扫描 更新		启动参数 IO映	COE-Online				
一点。命令语编程 	主站 PLC Master		高级远项 索引:子索引	名称	标志	为值	诵讯错误信息	
	从站	^	-#x50D0:00	ConfigurableDataXL-E8AD-A ADI-AD2滤波系数(O不滤波, 1-254滤	rw rw	>9<		
■ 函数功能库□ 系统函数功能库□ 用户函数功能库	StationID:10 Alias:0 LC3-AP LL-E4DA StationID:11 Alias:0 LC3-AP		-02 -03 -04	AU3-AD4滤波系列(U不滤波,1-254滤 AD5-AD6滤波系数(O不滤波,1-254滤 AD7-AD8滤波系数(O不滤波,1-254滤	rw rw rw	0		
—─ <mark>──</mark> 配置功能块 —──S 顺序功能块 ■ 软元件注释/使用状况	-XL-E4DA -StationID:12 Alias:0 LC3-AP -XL-E8X8Y		05 06 07	AD2测量范围, AD1测量范围 AD4测量范围, AD3测量范围 4 AD6测量范围, AD5测量范围	rw rw rw	136 153 170		
			-08 -09	AD8测量范围, AD7测量范围 AD通道 短路/断路/超量程检测	rw rw	0		
◎ 设立软元件初追 ◎ PLC配置	-XL-E16X16YT -XL-E16X16YT -XL-E4DA							
	-XL-E4AD2DA -XL-E4DA							
	-XL-EADR -XL-EBAD-V -XL-EADA							
—————————————————————————————————————	-XL-E4DA XL-E8AD-A -XL-E32X							
	XL-E32YT	*						5
■ PLC信息 ■ PLC本体信息						上传下载	激活 确定	リ 取消

Step 1: click EtherCAT

Step 2: choose the module

Step 3: click COE-Online

Step 4: set the AD filter coefficient, AD channel current mode. Please check the bit definition of #x5000. Step 5: after setting, click ok, then cut the power and power on again for the adapter to make the settings effective.

Note: The first-order low-pass filtering method uses this sampling value and the last filtering output value to weight to obtain the effective filtering value. The filter coefficient is set to $0 \sim 254$ by the user. The smaller the value, the more stable the data is, but it may lead to data lag. Therefore, when set to 1, the filtering effect is the strongest and the data is the most stable. When set to 254, the filtering effect is the weakest. The default is 0 (no filtering).

5-4-2. #x5000 bit definition

The input channel of the expansion module is in current mode, with options of $0 \sim 20$ mA, $4 \sim 20$ mA and $-20 \sim 20$ mA, which can be set through #x5000. As follows:

	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	Note
Byte0	AD ch	annel 2,							
Byte1	AD ch	annel 4,							
Byte2	AD ch	annel 6,		AD filter coefficient					
Byte3	AD ch	annel 8,							
Byte4	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	to specify the input range
	AD2 AD1							of the AD module,	
	1000: 0	current 0	~20mA		1000: c	urrent 0~	-20mA	05 lower 4 bits are the	
	1001: 0	current 4	~20mA		1001: c	urrent 4~	-20mA	setting bits of AD	
	1010: 0	current -2	20~20mA	A	1010: c	urrent -2	0~20mA	channel 1, and the upper	
Byte5	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	4 bits are the setting bits
	AD4								of AD channel 2.

	1000:	current 0	~20mA		1000: c	current 0~	-20mA	06 lower 4 bits are the			
	1001:	current 4	~20mA		1001: c	urrent 4~	-20mA	setting bits of AD			
	1010:	current -	20~20m/	4	1010: c	current -2	0~20mA	channel 3, and the upper			
Byte6	Bit7	Bit6	Bit5	Bit4	Bit3	Bit3 Bit2 Bit1 Bit0			4 bits are the setting bits		
	AD6	I			AD5		I	of AD channel 4.			
	1000:	current 0	~20mA		1000: c	urrent 0~	~20mA				
	1001: current $4\sim 20$ mA				1001: c	urrent 4~	-20mA	07 lower 4 bits are the			
	1010: current -20~20mA				1010: current -20~20mA				setting bits of AD		
Byte7	Bit7	Bit6	Bit5	Bit4	Bit3 Bit2 Bit1 Bit0				channel 5, and the upper		
	AD8	•			AD7			•	4 bits are the setting bits		
	1000:	current 0	~20mA		1000: c	urrent 0~	-20mA	of AD channel 6			
	1001:	current 4	~20mA		1001: c	urrent 4~	-20mA				
	1010:	current -	20~20m/	4	1010: c	current -2	0~20mA	08 lower 4 bits are the			
Byte8							setting bits of AD				
-	AD channel short circuit / open circuit / overtravel detection								channel / and the upper 4		
				t / open ened	bits are the setting bits of						
									AD channel 8.		

5-5. External wiring

During external connection, in order to avoid interference, please use shielded wire and ground the shielding layer at a single point.

5-5-1. Current single end input



XL-E8AD-A current input wiring diagram:



5-6. Analog digital conversion diagram



The relationship between input analog quantity and converted digital quantity is shown in the table below:

5-7. Dimension

(Unit: mm)


6. Analog input module XL-E8AD-V

6-1. Features and specification

XL-E8AD-V analog input module converts 8 analog input values into digital values, transmits them to PLC main unit, and carries out real-time data interaction with PLC main unit.



6-1-1. Features

- 8-channel analog input: voltage input.
- 14 bits high-precision analog input.
- As an L series expansion module, LC3-AP adapter can connect up to 16 modules.
- Output 2 bytes and input 34 bytes, a total of 36 bytes. Pay attention to the maximum PDO byte limit of the master station when using.

Itam	Analog input				
Item	Voltage input				
Analog input range	0~5V, 0~10V, -5~5V, -10~10V				
Max input range	DC±15V				
Digital output range	14-bit binary value (0~16383 or -8192~8191)				
Resolution	1/16383 (14-Bit)				
Comprehensive accuracy	1%				
Conversion speed	2ms/channel				
Module power supply	DC24V±10%, 150mA				
Installation method	It is directly installed on the guide rail of DIN46277 (width 35mm)				

6-2. Terminals

6-2-1. Terminal arrangement



6-2-2. Terminal signals

Name		Function
	PWR	When the module is connected to the power supply, the indicator is always on (green)
	COM	When the module communication port communicates normally, the indicator light is on
		(green)
	ERR	When there is an error in the module, the indicator is always on or flashing (red)
Indicator		When ERR light is always on, it indicates that the module has serious application errors
		and cannot be used. The use mode must be adjusted, and the PLC body is switched to stop
		state.
		When ERR flashes, it indicates that the module has application error, works abnormally
		and has abnormal data, but the PLC body is still run.
	L+	External power supply DC24V +
	М	External power supply DC24V -
	C0	VI0 output ground
	VI0	Channel 1 AD voltage input
	C1	VI1 output ground
	VI1	Channel 2 AD voltage input
	C2	VI2 output ground
	VI2	Channel 3 AD voltage input
Torminala	C3	VI3 output ground
Terminais	VI3	Channel 4 AD voltage input
	C4	VI4 output ground
	VI4	Channel 5 AD voltage input
	C5	VI5 output ground
	VI5	Channel 6 AD voltage input
	C6	VI6 output ground
	VI6	Channel 7 AD voltage input
	C7	VI7 output ground
	VI7	Channel 8 AD voltage input

6-2-3. Wiring connector specification

When wiring the module, its connector shall meet the following requirements:

- (1) Stripping length 9mm
- (2) Flexible wire with tubular bare end 0.25-1.5mm²
- (3) Flexible wire with tubular pre-insulated end 0.25-0.5 mm²

6-3. I/O address

XL series analog module does not occupy the I/O unit, and the converted value is directly sent to the PLC register. The PLC register definition number corresponding to the channel is as follows:

nercat参数配量						
扫描 更新		启动参数 10	映射 COE-Online			
主站		起始地址: :	字映射: HD ~ 位映射:	HM ~ 偏移: 12046		
PLC Master		索引:子索引	名称	地址	类型 位长	数值
		#x70A0:01	чо	HM12046	BOOL 1	ON
从站		^#x70A0:02	Y1	HM12047	BOOL 1	ON
StationID:10 Alia	s:0 LC3-AP	-#x70A0:03	¥2	HM12048	BOOL 1	NO
XL-E4DA		-#x70A0:04	¥3	HM12049	BOOL 1	ON
-StationID:11 Alia	s:0 LC3-AP	-#x70A0:05	¥4	HM12050	BOOL 1	ON
XL-E4DA		-#x70A0:06	¥5	HM12051	B00L 1	ON
StationLU:12 Alia	s:U LU3-AP	-#x70A0:07	Y6	HM12052	B00L 1	ON
-XI-EOVOI		-#x70A0:08	¥7	HM12053	B00L 1	ON
-XL-E16X		-#x70A0:09	Reserve	HM12054	B00L 1	OFF
XL-E16Y		-#x70A0:0A	Reserve	HM12055	BOOL 1	OFF
-XL-E16X16YT		-#x70A0:0E	Reserve	HM12056	BOOL 1	OFF
-XL-E16X16YT		-#x70A0:00	Reserve	HM12057	BOOL 1	OFF
—XL-E4DA		-#x70A0:0I	Reserve	HM12058	BOOL 1	OFF
-XL-E4AD2DA		#x70A0:0E	Reserve	HM12059	BOOL 1	OFF
-XL-E4DA		-#x70A0:0F	Reserve	HM12060	BOOL 1	OFF
-XL-E4DA		-#v7040:10	Reserve	HW12061	BOOL 1	OFF
XL-ESAD-V		#_#v6040:01	CH0	HT20084	TNT 16	3999
VI-RADA		-#v6040:02	сно СН1	HD20086	TNT 16	4000
-XL-ESAD-A		#_#v6040:02	CH2	HD20088	TNT 16	4001
XL-E32X			CH3	HD20000	TNT 16	4001
XL-E32YT		+-#x60A0:05	CH4	HD20092	INT 16	-6000
		×				
				Ŀ	传下载	数活 确定 取消
#x60A0:05	CH4		HD20092	INT	16	3998
#x60A0:06	CH5		1020094	INT	16	3998
#x60A0:07	CH6		HD20096	INT	16	4000
#v6040.08	CH7		HD20098	TNT	16	3999

Note: the reserve channel is a reserved channel, which has no practical significance

IO mapping register definition: (take above figure as an example)

Channel	AD signal mapping address	Channel enable bit (turn on the enable bit to use this channel)	Channel mapping
			address
CH0	HD20084	Y0	HM12046
CH1	HD20086	Y1	HM12047
CH2	HD20088	Y2	HM12048
CH3	HD20090	Y3	HM12049
CH4	HD20092	Y4	HM12050
CH5	HD20094	Y5	HM12051
CH6	HD20096	Y6	HM12052
CH7	HD20098	Y7	HM12053

Note:

(1) Disabling unused channels can improve the scanning speed of input/output.

(2) When the input enable bit is turned off during operation, the corresponding input channel will not collect data. (data is displayed as 0)

6-4. Working mode

6-4-1. Panel configuration

Please use XDPpro software V3.7.0 and up to configure the module.

Д	> Ethercat参数配置						2
日間程序	· 扫描 更新 主站		启动参数 I0映				
□□ 命令倍编柱	PLC Master		索引:子索引	名称	标志	数值	通讯错误信息
				ConfigurableDataXL-E8AD-V	rw	>9<	
🔤 头文件	从站	^	01	AD1-AD2滤波系数(0不滤波,1-254滤	rw	0	
➡ 🛃 函数功能库	-StationID:10 Alias:0 LC3-AP		-02	AD3-AD4滤波系数(0不滤波, 1-254滤	rw	0	
——————————————————————————————————————	-XL-E4DA		-03	AD5-AD6滤波系数(0不滤波, 1-254滤	rw	0	
——————————————————————————————————————	-StationID:11 Alias:0 LC3-AP		-04	AD7-AD8滤波系数(0不滤波, 1-254滤	rw	0	
— 🔟 配置功能块	-XL-E4DA		-05	AD2则里泡围, AD1则里泡围	rw	0	
	-StationID:12 Alias:0 LC3-AP		-06		rw	17	
	-XL-E8X8Y		-07	ADO测量记用, ADO测量记用	rw	54	
	-XL-ESXSY		-00	和通道 毎晩 (毎晩 (お母親 か)別	TW	0	
	-XL-E16X	_		加速度 这时/可时/超重性强烈	1.4	0	
	VI-EIGI	_					
- C配置	-YI-FIGYIGYT	_					
I/0 VO	-YI-E4DA	_					
	-XL-E4AD2DA	_					
— ● PLC 串口	-XL-E4DA						
	-XL-E4DA						
脉冲参数	XL-ESAD-V 2						
	-XL-E4DA						
— BD 模块	-XL-E4DA						
— ED 模块	-XL-ESAD-A						
- B. 4GBOX	-XL-E32X						
EtherCAT 1	L-XL-E32YT						
NC NC		~					5
WBOX					L.	住 工部	
- Ciele PLC信息						同時	漱冶 蛹定 取消
	Let a second sec						

Step 1: click EtherCAT

Step 2: choose the module

Step 3: click COE-Online

Step 4: set the AD filter coefficient, AD channel voltage mode. Please check the bit definition of #x5000. Step 5: after setting, click ok, then cut the power and power on again for the adapter to make the settings effective.

Note: The first-order low-pass filtering method uses this sampling value and the last filtering output value to weight to obtain the effective filtering value. The filter coefficient is set to $0 \sim 254$ by the user. The smaller the value, the more stable the data is, but it may lead to data lag. Therefore, when set to 1, the filtering effect is the strongest and the data is the most stable. When set to 254, the filtering effect is the weakest. The default is 0 (no filtering).

6-4-2. #x5000 bit definition

The input channel of the expansion module is in voltage mode, with options of $0 \sim 5V$, $0 \sim 10V$, $-5 \sim 5V$ and $-10 \sim 10V$, which can be set through #x5000. As follows:

	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	Note
Byte0	AD ch	annel 2,							
Byte1	AD ch	annel 4,		AD filter as officient					
Byte2	AD ch	annel 6,		AD IIItel coefficient					
Byte3	AD ch	annel 8,	7 filter co	oefficient					
Byte4	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	to specify the input range
	AD2				AD1			of the AD module,	
	0000: •	voltage (~10V		0000: voltage 0~10V			05 lower 4 bits are the	
	0001: voltage 0~5V				0001: voltage 0~5V			setting bits of AD	
	0010: voltage -10~10V			0010: v	oltage -1	0~10V		channel 1, and the upper	
	0011: voltage -5~5V				0011: voltage -5~5V			4 bits are the setting bits	
Byte5	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	of AD channel 2.
	AD4				AD3				06 lower 4 bits are the

	0000: •	voltage ()~10V		0000: voltage 0~10V				setting bits of AD
	0001: voltage 0~5V				0001: voltage 0~5V				channel 3, and the upper
	0010:	voltage -	10~10V		0010: v	oltage - 1	0~10V		4 bits are the setting bits
	0011:	voltage -	5~5V		0011: v	oltage -5	~5V		of AD channel 4.
Byte6	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	
	AD6		•	•	AD5	•	•	•	07 lower 4 bits are the
	0000: voltage 0~10V				0000: \	0000: voltage 0~10V			setting bits of AD
	0001: voltage 0~5V			0001: voltage 0~5V			channel 5, and the upper		
	0010: voltage -10~10V			0010: voltage -10~10V				4 bits are the setting bits	
	0011: voltage -5~5V			0011: voltage -5~5V			of AD channel 6		
Byte7	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	
	AD8		•	•	AD7	•	•	•	08 lower 4 bits are the
	0000: •	voltage ()~10V		0000: voltage 0~10V			setting bits of AD	
	0001: voltage 0~5V			0001: voltage 0~5V				channel 7 and the upper 4	
	0010:	0010: voltage -10~10V			0010: voltage -10~10V				bits are the setting bits of
	0011:	voltage -	5~5V		0011: v	oltage -5	~5V	AD channel 8.	
Byte8	AD ch	annel sh	ort circui	it / open circu	iit / overt	ravel det	ection		

6-5. External wiring

During external connection, in order to avoid interference, please use shielded wire and ground the shielding layer at a single point.

6-5-1. Voltage single end input



6-6. Analog digital conversion diagram

The relationship between input analog quantity and converted digital quantity is shown in the table below:





6-7. Dimension

(Unit: mm)



7. Analog output module XL-E4DA

7-1. Features and specification

XL-E4DA analog output module converts four digital quantities into analog quantities, transmits them to PLC main unit, and carries out real-time data interaction with PLC main unit.



7-1-1. Features

- 4-channel analog output: voltage output and current output are optional.
- 12-bit high-precision analog output.
- As an L series expansion module, LC3-AP adapter can connect up to 16 modules.
- Output 10 bytes and input 10 bytes, a total of 20 bytes. When using, pay attention to the maximum PDO byte limit of the master station.

7-1-2. Specification

Item	Voltage output	Current output			
Analog output range	0~5V, 0~10V, -5~5V, -10~10V	0~20mA, 4~20mA			
Analog output range	(external load resistor $2K\Omega \sim 1M\Omega$)	(external load resistor less than 500Ω)			
Digital input range	12-bit binary value (0~4095 or -2048~2047)				
Resolution	1/4095 (12-Bit)				
Comprehensive		10/			
accuracy		1 /0			
Conversion speed	2ms/channel	2ms/channel			
Module power supply	DC24V±1	10%, 150mA			
Installation method	It is directly installed on the guid	de rail of DIN46277 (width 35mm)			

7-2. Terminals

7-2-1. Terminal arrangement



7-2-2. Terminal signals

Name		Function
	PWR	This indicator is on when the module has power supply
	COM	This indicator is on when the module communication port communicates normally
	ERR	When there is an error in the module, the indicator is always on or flashing (red)
Indicator		When ERR light is always on, it indicates that the module has serious application errors
mulcator		and cannot be used. The use mode must be adjusted, and the PLC body is switched to stop
		state.
		When ERR light flashes, it indicates that the module has application error, works
		abnormally and has abnormal data, but the PLC body is still run.
	L+	External power supply DC24V +
	М	External power supply DC24V -
	C0	VO0, AO0 output ground
	VO0	Channel 1 DA voltage output terminal
	AO0	Channel 1 DA current output terminal
	C1	VO1, AO1 output ground
Terminala	VO1	Channel 2 DA voltage output terminal
Terminais	AO1	Channel 2 DA current output terminal
	C2	VO2, AO2 output ground
	VO2	Channel 3 DA voltage output terminal
	AO2	Channel 3 DA current output terminal
	C3	VO3, AO3 output ground
	VO3	Channel 4 DA voltage output terminal
	AO3	Channel 4 DA current output terminal

7-2-3. Wiring connector specification

When wiring the module, its connector shall meet the following requirements:

- (1) Stripping length 9mm
- (2) Flexible wire with tubular bare end 0.25-1.5mm²
- (3) Flexible wire with tubular pre-insulated end 0.25-0.5 mm²

7-3. I/O address

XL series analog module does not occupy the I/O unit, and the converted value is directly sent to the PLC register. The PLC register definition number corresponding to the channel is as follows:

扫描更新	启动参数 10映射	COE-Online					
主站	起始地址: 字映	県射: HD ~ 位映射: HM ~ 偏	移: 20000				
°LC Master	索引:子索引	名称	地址	类型	位长	数值	1
	±-#x7060:01	СНО	HD20000	INT	16	1000	
人站	^ + - # x7060∶02	CH1	HD20002	INT	16	4000	_
-StationID:10 Alias:0 LC3-AP	+-#x7060:03	CH2	HD20004	INT	16	4000	
XL-E4DA	+-#x7060:04	CH3	1020006	TNT	16	0	
-StationID:11 Alias:0 LC3-AP	-#x7060:05	VO	HW12034	BOOT.	1	กพ	-
-XL-E4DA	#x7060:06	V1	HW12035	BOOL	1	ON	-
StationID:12 Alias:0 LC3-AP	#= 7060:07	11	1012036	POOL	1	OFF	_
-XL-ESXSY	#x1060.07	12	1012036	BOOL	1	OFF	_
-XL-E8X8Y	#x1060.06	15	1000000	THE	1	110	_
-XL-E16X	#x6060:01	Reserve	1020008	INI	16	0	
-XL-E16Y	±-#x6060∶02	Keserve	HD20010	INT	16	0	
-XL-EIGXIGTI		Reserve	HD20012	INT	16	0	
		Reserve	HD20014	INT	16	0	
VI-RAADODA	-#x6060:05	Reserve	HM12038	BOOL	1	OFF	
	-#x6060:06	Reserve	HM12039	BOOL	1	OFF	
VI -RADA	-#x6060:07	Reserve	HM12040	BOOL	1	OFF	
XI -FSAD-V	-#x6060:08	Reserve	HM12041	BOOL	1	OFF	
XL-E4DA	-#x6060:09	Reserve	HM12042	BOOL	1	OFF	
-XL-E4DA	-#x6060:0A	Reserve	HM12043	BOOL	1	OFF	
-XL-E8AD-A	-#x6060:0B	Reserve	HM12044	BOOL	1	OFF	
-XL-E32X	#x6060:0C	Reserve	HM12045	BOOL	1	OFF	
XL-E32YT					-		
	×						

IO mapping register definition: (take above figure as an example)

		Channel enable bit	Channel
Channel	DA signal	(turn on the enable bit to use this channel)	mapping
		(turn on the endole of to use this enamer)	address
0CH	HD20000	Y0	HM12034
1CH	HD20002	Y1	HM12035
2CH	HD20004	Y2	HM12036
3CH	HD20006	Y3	HM12037

Note:

(1) Disabling unused channels can improve the scanning speed of input/output.

(2) When the enable bit of the output is turned off during operation, the corresponding output channel keeps the original data unchanged.

7-4. Working mode

7-4-1. Panel configuration

工程 早	▶ Ethercat参数配置						×
			2				
■ 推測 柱序	扫描 更新	启动参数 10映	J OLONIINE J				
—————————————————————————————————————	主站	高级选坝					
□ □ 函数功能块	PLC Master	索引:子索引	名称		标志	数值	通讯错误信息
源文件		⊡ -#x5060:00	ConfigurableDataXL-E4DA		rw	>2<	
渔 头文件	从站 ^	01	DA2输出, DA1输出	4	rw	36	
□ <mark>EX</mark> 函数功能库	StationID:10 Alias:0 LC3-AP	-02	DA4输出,DA3输出	-	rw	0	
	-XL-E4DA						
	-XI-F4DA						
■ 順広功能快	-StationID:12 Alias:0 LC3-AP						
	-XL-ESXSY						
	-XL-ESXSY						
	-XL-E16X						
设置软元件初值	-XL-E16X16YT						
	-XL-E16X16YT						
170 VO	XL-E4DA 2						
— ● PLC 串口	-XL-E4AD2DA						
	-XL-ESAD-V						
— 000 扩展模块	-XL-E4DA						
BD BD模块	-XL-E4DA						
	-XL-ESAD-A						
- WW EtherCAT 1	XL-E32X						
NC NC	×						5
WBOX					_		
□□ PLC信息						上传 下载	· 激活 确定 取消

Step 1: click EtherCAT

Step 2: choose the module

Step 3: click COE-Online

Step 4: set the DA channel voltage current output mode. Please check the bit definition of #x5000. Step 5: after setting, click ok, then cut the power and power on again for the adapter to make the settings effective.

7-4-2. #x5000 bit definition

	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	Note
Byte0	DA2				DA1				
	-	voltage	current		-	voltage	curren	t	
		000: 0~10V	010: 0~20mA	A		000: 0~10	/ 010: 0~2	0mA	
		001: 0~5V	011: 4~20mA	Δ		001: 0~5V	011: 4~20	OmA	
		100: -10~10	V			100: -10~1	0V		
		101: -5~5V				101: -5~5V	τ		
Byte1	DA4				DA3				
	-	voltage	current		-	voltage	curren	t	
		000: 0~10V	010: 0~20mA	A		000: 0~10	/ 010: 0~2	0mA	
		001: 0~5V	011: 4~20mA	Δ		001: 0~5V	011: 4~20	OmA	
		100: -10~10	V			100: -10~1	0V		
		101: -5~5V				101: -5~5V	7		

7-5. External wiring

During external connection, in order to avoid interference, please use shielded wire and ground the shielding layer at a single point.

7-5-1. Voltage single end output



7-5-2. Current single end output



XL-E4DA current output wiring diagram:



Note: current output no need to connect DC24V power supply.

7-6. Analog digital conversion diagram

The relationship between the output digital quantity and its corresponding analog quantity data is shown in the table below:



When the input data exceeds K4095, the output analog data of D/A conversion remains unchanged at 5V, 10V or 20mA.

7-7. Dimension

(Unit: mm)



8. Application of LC3-AP and Xinje XG2 PLC

8-1. System configuration

Name	Model	Quantity	Note
Motion control software	CODESYS	1	Software: V3.7.1
Xinje EtherCAT master station	XG2 series PLC	1	Firmware: V3.6.2
Xinje remote IO slave station	L series	Some	
Xinje remote expansion module	XL series	Some	
Network cable	JC-CA-3	Some	To connect PC and servo driver

8-2. System topology



XG2 series PLC has upper and lower network ports. The upper network port is Ethernet/IP, which is used to connect XDPpro upper computer. The lower network port is EtherCAT connection port, which is used to connect L series remote IO to realize EtherCAT communication. The two communication network ports of Xinje L series remote IO shall follow the principle of "bottom in and top out".

XG2 master station can connect up to 32 L series remote IO adapters, and LC3-AP adapter can connect up to 16 modules. The maximum PDO of XG2 is 8192 bytes, which should be paid attention to during model selection.

8-3. Debugging steps

8-3-1. Add XML File

Before opening the software, we need to copy the description XML file of LC3-AP adapter device to the installation directory of XDPpro. The default path is C:\XDPPro\ethercat\vendorxml.

8-3-2. Create communication between XDPPro and XG2

(1) Modify the PC Ethernet IP to 192.168.6.xxx.

(2) Open XDPPro software.

(1) click communication configuration, choose Xnet protocol, designated address, default IP is 192.168.6.6. click ok.

		Xinje PLC Program Tool
File Edit Search View Online	Configure Option Window H	elp
🗋 😅 📕 👗 🖻 🖺	🗢 🔿 🗛 📄 🖻 🎒	🌊 🐣 🌺 🕒 🗖 🔒 🍰 🖼 🧱 🕰 📟
TINS SINS Del SDel F5 F6	$\begin{array}{c c} +\uparrow + & +\downarrow + & \prec & \prec & \prec & \land & \land & \land & \land & \land & \land & \land$	→ ↓ ↓ ↓ UT IX 🚺 · 👖 · 🚺 · 🚺 · 🚺 ·
Project 4 X	PLC1 - Ladder	
Config Block		
Sequence Block		
Eree Monitor	0	
Data Monitor		Commission Manual PherNet-Xnet-Default
Set Reg Init Value		
PLC Config	: New Edit Dele	te Move Connection mode selection
<u>II0</u> VO	Name	Interface Type: Ethemet V
Password	USB-Xnet-Default	CommProtocol: Xnet V
PLC Serial Port	EtherNet-Xnet-Defa	mode: Device type-XD
ethernet	BharNet Madhua 5	Connect Type: designated address V
Puise	EtherNet-Modbus-D	Communication parameter configuration
BD		IP Address: 192.168.6.6
la ED		
4GBOX		
EtherCAT		ServerConfig Service in operation
		Auto-connection evit
SystemConfig		
Motion control(H movement)		Comm-Test OK Cancel
Axis configuration		

(2) If it shows the message "the model and serial number are inconsistent with the PLC", please click ok to automatically select the appropriate model.

(3) Check whether the PLC model is XG2 at the bottom of the interface and whether there is "RUN" in the lower right corner. If there is no "RUN", double-click in the lower right corner to check.

8-3-3. Scan the slave station device

(1) Click EtherCAT, it will show Ethercat configuration interface

(2) click scan

(3) Check whether the number of slave stations scanned and the modules are correct. If there is an error, you can try to scan multiple times, check whether there is an error in the hardware connection, and try to power on again.

(4) Click OK after confirmation.

工程 7	≻ Ethercat参数配置						×
⊟-41 PLC1	1.						
□ □□ 程序	日描更新	常规 专家过程	数据 启动参数 IO映射	寸 COE-Online ESC寄	存器		
	主站						
	174 N.C.W. 1		(a	-1 -1 -1 -1	the state of the s		
□ 🖸 函数功能块	rLL master	偏秒时间(us):	U 🕀	- 切能映射号:	5 -		
🎦 源文件							
🎦 头文件	从站 ^	SW香门狗·		市能植 体选择:	IO Module 🗸 🗸		
□-EX 函数功能库	-StationID:0 Alias:0 LC3-AP	Sing(199).		4786 (AVC/22)+ -			
系统函数功能库	-XL-E16X16YT		>=++ #				
— 🤄 用户函数功能库	-StationID:1 Alias:0 LC3-AP	从站信息	初始化				
	L-E16X16YT						
	-StationID:2 Alias:0 XINJE-DS5C CoE Drive	状态机					
	-StationID:3 Alias:0 LC3-AP						
	-XL-E16X16YT	当前状态	OP				
	StationID:4 Alias:0 LC3-AP	请求状态	OP				
🔤 设置软元件初值	VI_POAD_A	H-TOUS	<u> </u>				
⊨- 📴 PLC配置	VI_FOAD_A	错误信息					
I/0 VO	-XL-ESAD-A						
	-XL-EBAD-A						
● PLC 串口	-XL-ESAD-A						
	-XL-ESAD XL-ESAD-A						
	-XL-ESAD-A						
	-XL-E8AD-A						
BD BD模块	-XL-E8AD-A						
ED ED模块	-XL-ESAD-A						
B. 4GBOX	-XL-ESAD-A						
EtherCAT	-XL-ESAD-A						
NC NC	-XL-ESAD-A						
WBOX					L# T#	1941AL 722-	TT = 234
e i PLC信息					上で「刺	- 湖泊 - 朝正	4文/月
□ Un on on the feet							

8-3-4. EtherCAT parameter configuration

(1) Confirm that the state machines of all slaves are in the OP state. If not, you can click to activate and switch the state again. If it is not activated, check whether the module carried by the slave station corresponds to the actual module connected one by one. Or check whether the status light of the slave station reports an error.

rcat参数配置		
日描 更新	常规 专家过程数据 启动参数 IO映射 COE-Online ESC寄存器	
站		
£ Master	偏移时间(us): 0 🗼 功能映射号: 0 🜩	
站 StationID:0 Alias:0 LC3-AP	SM语门狗:功能復块选择: IO Module ~	
-XL-E16X16YT StationID:1 Alias:0 LC3-AP -XL-E16X16VT	从站信息初始化	
StationID:2 Alias:0 XINJE-DS5C CoE Drive StationID:3 Alias:0 LC3-AP	状态机	
_XL-E16X16YT	当前状态 OP	
StationID:4 Alias:0 LC3-AP		
-XL-E4DA	请水状念 Ur	
-XL-ESAD-A	错误信息	
-XL-E8AD-A		
-XL-ESAD-A		
-XL-ESAD-A		
-XL-ESAD-A XL-ES	<u>и-х</u>	
-XL-ESAD-A		
-XL-ESAD-A		
-XL-E8AD-A		
-XL-ESAD-A		
-XL-ESAD-A		
-XL-ESAU-A		
-XL-ESAD-A		
-AL-EGAU-A		

(2) Select the expansion module and click IO mapping to view the bit address corresponding to 16X16Y. The address starts from HM10000 by default, and you only need to control the HM address mapped by XY to control the input and output of the module.

扫描更新	启动参数 IO映	T COE-Onl	ine		_			
主站	起始地址: 字明	央射: HD	<│位映射:│Ⅲ ~│ 偏移	: 10000				
PLC Master	索引:子索引	名称		地址	类型	位长	数值	
	#x7000:01	YO		HM10000	BOOL	1	ON	
从站 ^	#x7000:02	¥1		HM10001	BOOL	1	ON	
-StationID:0 Alias:0 LC3-AP	#x7000:03	¥2		HM10002	BOOL	1	ON	
XL-E16X16YT	-#x7000:04	¥3		HW10003	BOOL	1	ON	
-StationID:1 Alias:0 LC3-AP	-#x7000:05	¥4		10110004	BOOL	-	ON	
-XL-E16X16YT	#x7000:06	VE.		1010005	BOOL	1	กท	
-StationID:2 Alias:0 XINJE-DS5C CoE Drive	## 7000:07	WG		W10006	ROOT	1	01	
-StationID:3 Alias:0 LC3-AP	#27000.01	10		10110000	DOOL		08	
L_XL-E16X16YT	#x1000.08	11		JM10007	DOOL	1	UN ON	
-StationID:4 Alias:0 LC3-AP	#x1000:09	110		AM10008	DOOL	1	ON	
-IL-EAUA	#x7000:0A	111		HM10009	BOOL	1	UFF	
VI_ROAD_A	-#x 7000 : 0B	¥12		HM10010	BOOL	1	OFF	
XL-ESAD-A	-#x7000:0C	¥13		HM10011	BOOL	1	OFF	
	-#x 7000 : 0D	¥14		HM10012	BOOL	1	OFF	
VI -ROAD-A	-#x7000:0E	¥15		HM10013	BOOL	1	OFF	
YI -FSAD-A	-#x7000:0F	¥16		HM10014	BOOL	1	OFF	
-YI-FSAD-A	-#x7000:10	¥17		HM10015	BOOL	1	OFF	
-XL-ESAD-A	-#x6000:01	XO		HM10016	BOOL	1	OFF	
-XL-E8AD-A	-#x6000:02	X1		HM10017	BOOL	1	OFF	
-XL-E8AD-A	#x6000:03	X2		HM10018	BOOL	1	OFF	
-XL-E8AD-A	-#x6000:04	X3		HM10019	BOOL	1	OFF	
-XL-ESAD-A	-#v6000:05	¥4		10020	BOOL	-	OFF	
-XL-ESAD-A V				Jana GOLO	2001		~**	

③Click COE-Online to modify the filter time and positive and negative logic. After the modification is completed, the slave station needs to be powered on again to take effect. For details, please refer to chapter 2-5.

扫描 更新	启动参数 10映	COE-Online				
主站	高级选项					
PLC Master	索引:子索引	名称	标志	数值	通讯错误信息	
		ConfigurableDataXL-E16X16VT	rw	>12<		
从站	-01	XO-X3滤波时间(ms)	rw	0		
StationID:0 Alias:0 LC3-AP	-02	X4-X7滤波时间(ms)	rw	0		
-XL-E16X16YT	-03	X10-X13滤波时间(ms)	z.m.	0		
-StationID:1 Alias:0 LC3-AP	-04	X14—X17滤波时间(ms)	rw	0		
_XL-E16X16YT	-05	X3逻辑, X2逻辑, X1逻辑, X0逻辑	rw	0		
-StationID:2 Alias:0 XINJE-DS5C CoE Drive	-06	17逻辑,16逻辑,15逻辑,14逻辑	rw	0		
StationID:3 Alias:0 LC3-AP	-07	X13逻辑, X12逻辑, X11逻辑, X10逻辑	rw	0		
_XL-E16X16YT	-08	X17逻辑, X16逻辑, X15逻辑, X14逻辑	rw	0		
StationID:4 Alias:0 LC3-AP	-09	¥3逻辑,¥2逻辑,¥1逻辑,¥0逻辑	rw	0		
-XL-E4DA	—0A	17逻辑,16逻辑,15逻辑,14逻辑	rw	0		
-XL-E8AD-A	-0B	¥13逻辑, ¥12逻辑, ¥11逻辑, ¥10逻辑	rw	0		
-XL-E8AD-A	L-oc	¥17逻辑,¥16逻辑,¥15逻辑,¥14逻辑	rw	0		
-XL-ESAD-A						
-XL-ESAD-A						
-XL-ESAD-A						
-XL-ESAD-A						
-XL-ESAD-A						
-XL-E8AD-A						
-XL-ESAD-A						
-XL-ESAD-A						
-XL-ESAD-A						
-XL-ESAD-A						
-XL-ESAD-A V						

8-3-5. Program

According to the above figure, Y0, Y1 correspond to the mapping addresses HM10000, HM10001. X0, X1 correspond to the mapped addresses HM10016, HM10017.

Program directly with the mapped HM address. When M0 and M1 are set to ON, HM10000 and HM10001 are set to NO, and Y0 and Y1 have output signals.

When X0, X1 have signal input, HM10016, HM10017 turn ON, and M2, M3 turn ON.



9. LC3-AP and TwinCAT application

This example will illustrate how the Beckhoff TWINCAT control software is used as the EtherCAT master and the XINJE remote IO is used as the slave to realize EtherCAT control.

9-1. System configuration

Name	Model	Quantity	Note
Motion control	TWINCAT XAE (VS 2013)	1	Application version used in this example:
software			TC31-FULL-Setup.3.14022.27
Xinje remote IO	L series	Some	
slave station			
Xinje remote	XL series	Some	
expansion module			
Network cable	JC-CA-3	Some	For connection between computer and
			servo

9-2. System topology



The two communication network ports of Xinje remote IO adapter follow the principle of "bottom in and top out", that is, the master station must be connected to the network port below the CN1 port of the first slave station, and then the top network port of the first slave station must be connected to the bottom network port of the second slave station, and so on.

9-3. Debugging steps

9-3-1. Add XLM file

Before opening the software, we need to copy the XML file of the remote IO to the Twincat installation directory, the default path is C:\TwinCAT\3.1\Config\Io\EtherCAT.

9-3-2. New project

Open the TwinCAT XAE (VS 2013) software and create a new project:

(1) execute FILE—NEW—Project

(2) select TwinCAT Project, after entering the project name and the project save path, click OK, and then the property explorer will appear in the project bar.

▷ Recent	.NET F	amework 4.5	Sort by: Default	- II' E	Search Installed 🔑 -	Soluti	ion Explorer	- ļ
 Installed Templates Other Project TwinCAT Me TwinCAT PLC TwinCAT Pros Samples 	et Types assurement S ojects	TwinCAT XAE P	rojecTwinCAT Projects	Type: TwinCAT TwinCAT XAE Sy Configuration	Projects stem Manager	Searce	A To - A P	i' (1 project)
♪ Online	<u>Cli</u>	:k here to go or	line and find templates.			ľ.	Type System	
 Online Name: 	<u>Cli</u> TwinCAT wendangtuli	:k here to go or	line and find templates.			Í	Type System TcCOM Objects MOTION PLC	
 Online Name: Location: 	<u>Cli</u> TwinCAT wendangtuli F:\TWINCAT\	ik here to go or	line and find templates.	Browse			MOUTES Type System Type System MOTION OTION PLC SAFETY SAFETY SAFETY	
 Online Name: Location: Solution: 	Cli TwinCAT wendangtuli F:\TWINCAT\ Create new solution	:k here to go or	line and find templates. -	Browse			Type System Type System TCCOM Objects MOTION PLC PLC SAFETY SAFETY SAFETY	

9-3-3. Hardware scan

at this time, if the controller is not in config mode, click a switch to config mode, then right click Device/Scan.



After scanning, it will show below window:

 ■ Solution TwinkCAT Project? (1 project?
 ▲

 ■ TwinCAT Project? (1 project?)
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9-3-4. Slave station parameters

(1) Click BOX, select Onine. Confirm that the state machines of all slaves are in the OP state.

Solution Explorer \bullet 4 \times	TwinCAT Project7	′ + ×	
© ⊂ ☆ io - i ≠ <u>-</u>	General Ether	AT Process Data S	Slots Startup CoE - Online Online
Search Solution Explorer (Ctrl+;)			
Solution 'TwinCAT Project7' (1 project) TwinCAT Project7 Solution 'TwinCAT Project7 Not Carl and the second se	State Machir Init Pre-Op Op	Bootstrap Safe-Op Clear Error	Current State: OP Requested State: OP
	DLL Status Port A:	Carrier / Open	
 Device 2 (EtherCAT) Image 	Port B: Port C:	Carrier / Open	ed
 Image-initia \$ SyncUnits Inputs 	Port D:	No Carrier / Closed	ed
Outputs Gamma InfoData South (LC3-AP) VL Box 2 (LC3-AP)	File Access o	over EtherCAT d Upload	d
 Drive 3 (XINJE-DS5C CoE Drive Rev2.0) 			
 XJ Box 4 (LC3-AP) XJ Box 5 (LC3-AP) 	Name	Online Ty	Type Size >Ad In/ Us Linked to ▲
 XJ Box 6 (LC3-AP) XJ Box 7 (LC3-AP) 	 ✓ X1 ✓ X2 	0 Bi 0 Bi	BIT 0.1 114 Input 0 BIT 0.1 114 Input 0 BIT 0.1 114 Input 0
 XJ Box 8 (LC3-AP) XJ Box 9 (LC3-AP) XJ Box 10 (LC3-AP) 	 ✓ X3 ✓ X4 	0 Bi 0 Bi	àlT 0.1 114 Input 0 BIT 0.1 114 Input 0
 XJ Box 11 (LC3-AP) XJ Box 12 (LC3-AP) 	♥ X5 ♥ X6	0 Bi 0 Bi	31T 0.1 114 Input 0 31T 0.1 114 Input 0

(2) Click BOX, select CoE-Onine. Modify the filter time and positive and negative logic. After the modification is completed, the slave station needs to be powered on again to take effect. For details, please refer to chapter 3-5.

Solution Explorer 🔹 🖣 🗙	TwinCAT Project7	4 ×			
○ ○ ☆ io - i / ≠	General EtherCA	T Process Data Slots St	artun Co	E - Online Onli	ne
Search Solution Explorer (Ctrl+;)	General Enercy	11 1100035 Data 51013 54			
Solution 'TwinCAT Project7' (1 project)	Update	List Auto Upo	late 🔽	Single Update	Show Offline Data
TwinCAT Project7		· · ·			
SYSTEM	Advance	ed			
	Add to Sta	online Data	1	Module OI	D (AoE Port): 0
NC-Task 1 SAF					
PLC	Index	Name	Flags	Value	Unit
SAFETY	⊢100A	Software Version	RO	2.1.0	
9 C++	- 1010	Build Date	RO	May 19 2020	
	⊞ 1011:0	Data Reset	RW	>1<	
Devices	= 5000:0	ConfigurableDataXL-E1	RW	> 20 <	
Device 2 (EtherCAT)	5000:01	X0-X3滤波时间(ms)	RW	0x00 (0)	
== Image	5000:02	X4-X7滤波时间(ms)	RW	0x00 (0)	
Synclinits	5000:03	X10-X13滤波时间(ms)	RW	0x00 (0)	
Inputs	5000:04	X14-X17滤波时间(ms)	RW	0x00 (0)	
Outputs	5000:05	X3逻辑,X2逻辑,X1逻辑,X	RW	0x00 (0)	
▶ 🛄 InfoData	5000:06	X7逻辑,X6逻辑,X5逻辑,X	RW	0x00 (0)	
D XJ Box 1 (LC3-AP)	5000:07	X13逻辑,X12逻辑,X11逻	RW	0x00 (0)	
XJ Box 2 (LC3-AP)	5000:08	X17逻辑,X16逻辑,X15逻	RW	0x00 (0)	
Drive 3 (XINJE-DS5C CoE Drive Rev2.0)	5000:09	Y3逻辑,Y2逻辑,Y1逻辑,Y0	RW	0x00 (0)	
Box 4 (LC3-AP)	5000:0A	Y7逻辑,Y6逻辑,Y5逻辑,Y4	RW	0x00 (0)	
Box 5 (LC3-AP)	5000:0B	Y13逻辑,Y12逻辑,Y11逻	RW	0x00 (0)	
NJ Box 6 (LC3-AP)	5000:0C	Y17逻辑,Y16逻辑,Y15逻	RW	0x00 (0)	
Box 7 (LC3-AP)	· 9000:0	Adapter status	RO	>1<	
NJ Box 8 (LC3-AP)		Scaned Module Ident List	RO	>1<	
NJ Box 9 (LC3-AP)					

9-3-5. Create variables and link

(1) Right click PLC, select Add New Item.



(2) Select Standard PLC Project. And change the name to English, such as "test" in the picture below.



(3) Double click Main under POUs, and make a simple program:



(4) After programming, right click test Project, select Build

✓ PLC ✓ If test		1
🔺 🚝 test Project	-21	Login
External Types	-	Login
References		Build
DUTs		Rebuild
GVLs		Check all objects
MAIN (PRG)		Clean
VISUs		Add •
▷ 📑 PIcTask (PIcTask) 🖀 test Instance	'n	Add Solution to Source Control
SAFETY		Export to ZIP
%. C++		Import from ZIP
Þ 🔁 I/O		Export PLCopenXML
		Import PLCopenXML

(5) The system will automatically compile this code. If there is no error, it will prompt the successful generation in the message bar, and the input and output variables will be generated in the test Instance for linking.



(6) Click the input and output variables in the module to start variable linking.

○ ○ ☆ io - i 🖋 🗕	Variable Flags	Online		
Search Solution Explorer (Ctrl+:)	variable riags	Onine		
	Namo	XO		
NC-Task 1 SAF	Name.			
PLC PLC	Type:	BIT		
SAFETY			1	
64+	Group:	Channels Data	Size:	0.1
▲ 🔄 I/O		1149.0		0
 Devices 	Address:	1145.0	User ID:	0
 Device 2 (EtherCAT) 				
Image	Linked to			
Thage-Info	Comments			â
SyncUnits	Comment:			
P inputs				
V Goutputs				
P initial initiality initialit				
A VI Medule 1 (VI F16V16VT)				
Changels Date				
				-
× X0				
× XI	ADS Info:	Port: 11, IGrp: 0x3040010, IOf	ffs: 0xC00023E8,	Len: 1
* X2				
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(7) After linking variable, select TwinCAT, click Activate Conifguration

Twir	hCAT PLC 团队(M) 数据(A) 上具(T) 体系结构(C) 1
28	Generate Mappings	
112	Activate Configuration	
6	Restart TwinCAT System	
*	Restart TwinCAT (Config Mode)	
2	Reload Devices	
14	Scan	
	Toggle Free Run State	
60	Show Online Data	
10	Show Sub Items	
###	Access Bus Coupler/IP Link Register	
	Update Firmware/EEPROM	,
	Show Realtime Ethernet Compatible Devices	
	Selected Item	,

(8) Click ok in below window:



(9) If the following window pops up, it means that some licenses in your project have not been activated, but it does not matter, click Yes to reactivate the missing licenses.



(10) Enter 5 security codes then click ok

Enter Security Code	
Please type the following 5 characters:	OK
FCkQM	
FCkQM	Cancel
FCkQM	Cancel

(11) Click ok to switch to RUN mode.

Microsoft Visual Studio
Restart TwinCAT System in Run Mode
确定 取消

(12) Click Login



Click Yes in below window:



The program runs normally, when the module X0 has a signal input, the variables output and input both become TRUE.

Start

५न्त.		值	准备值	注释
ø output	BOOL	TRUE		12011
input	BOOL	TRUE		

10. LC3-AP and CODESYS application

This example will illustrate how the CODESYS motion control software is used as the EtherCAT master station (Xinje XS3 series PLC is only used as a hardware platform), and how the Xinje remote IO is used as the slave station to realize EtherCAT remote control.

10-1. System configuration

Name	Model	Quantity	Note
Motion control software	CODESYS	1	Software version: V3.5 SP13 Patch 1
Hardware control	XS3 series PLC	1	
platform			
Xinje remote IO slave	L series	Some	
station			
Xinje remote expansion	XL series	Some	
module			
Network cable	JC-CA-3	Some	For connection between computer and servo

10-2. System topology



10-3. Debugging steps

10-3-1. New project

Open Codesys software, click New Project, enter the project name and storage path, click ok.

Start Page X	Patch 1
Basic Operations	Latest News
1 New Project	The current news channel might not be valid or your Internet connection migh the Options dialog and select the Load&Save category.
Open Project from PLC	🛅 New Project 💌
Recent Projects	Categories: Iemplates: Libraries Implates: Projects Implates: Empty project Implates: HMI project Standard project w Standard project w Standard project w
☑ Close page after project load ☑ Show page on startup	Name: Untitled 1 Location: D:\信捷\Sodesys

10-3-2. Add XML file

Open the tool device library and add the XML files of the master device and the slave device respectively. First, add the XML file of the master device here. Click Tools--Device Repository in turn, click Install in the pop-up dialog box, select the path where the XML file is located to find the XML file, select it and click Open.



Location	Sustem Deperitory		- Edit Locations
Location	(C:\ProgramData\CC	DESYS\Devices)	
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文章 (音 し	· 呼	XINJE-DS5-C_rev1.1 XML 文档 198 KB	
	文件名(1	l): Xinje-Cortex-Linux-SM-CNC.de 👻	ercos XML Device descripti 👻
		3	打开(O) 取消

After opening, the installation is completed, as shown in the following figure. In the same way, install the slave XML file.

ocation:	System Repository				Edit Locatio	ins
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	CODESYS Softmotion RTE V3	x64 38	S - Smart Software Solutions	GmbH		
	CODESYS SoftMotion Win V3	35	S - Smart Software Solutions	GmbH		
	CODESVE SoftMotion Min V2	64 20	Smart Coffware Colutions	CmbH		
	Vinia-Cortex Jinux Sta Chic	14	uni Vinia Electric Co. 114			
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	CODESYS Control RTE V3	30	5 - Smart Software Solutions	GmbH +	Details	
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10-3-3. Add master station device

Right click Untitled, click Add Device, click Add Device, select PLCs—SoftMotionPLCs --Xinje – Cortex-Linux-SM-CNC, then click Add Device to add the PLC.

• Ounderth	project* - CODESYS	
<u>File Edit Vi</u>	ew <u>Project</u> <u>Build</u> <u>Online</u>	Debug Tools
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Add Device Mater Device Xinje_Cortex_Linux_SM_CNC kction: papend device insert device ins	Blug device Update device Vendor: <ali><ali><ali><ali><ali><ali><ali><ali< td=""><td>Version Description 4 3.5, 13, 10 A CODESYS 3.x SoftMol 4 4 3.5, 13, 10 A CODESYS 3.x SoftPul 4 4 3.5, 13, 10 A CODESYS 3.x SoftPul 4 4 3.5, 13, 10 CODESYS SoftMolton Sc 3.5, 13, 20 5 3.5, 13, 20 CODESYS SoftMolton Sc 3.5, 13, 20 7 Yersions Yersions</td></ali<></ali></ali></ali></ali></ali></ali></ali>	Version Description 4 3.5, 13, 10 A CODESYS 3.x SoftMol 4 4 3.5, 13, 10 A CODESYS 3.x SoftPul 4 4 3.5, 13, 10 A CODESYS 3.x SoftPul 4 4 3.5, 13, 10 CODESYS SoftMolton Sc 3.5, 13, 20 5 3.5, 13, 20 CODESYS SoftMolton Sc 3.5, 13, 20 7 Yersions Yersions
Add Device Mater State Context Linux SM_CNC Keton:	Blug device Update device Vendor: <a> Vendor <a> Vendor <a> Vandor <a> Vandor <a> Vandor <a> Vandor <a> Vandor <a> Vandor <a> Vandor <a> Vandor <a> Vandor <a> Vandor <a> Vandor <a> Vandor <a> Vandor <a> Vando	Version Description 4 3.5, 13, 10 A CODESYS 3.x SoftMol 13, 5, 13, 10 4 3.5, 13, 10 A CODESYS 3.x SoftPul 4 4 3.5, 13, 10 A CODESYS SoftMolon Sc 3.5, 13, 10 4 3.5, 13, 10 CODESYS SoftMolon Sc 3.5, 13, 20 7 Versions
Add Device me: Xinje_Cortex_Linux_SM_CNC ckton:	Elug device Update device Vendor: ≪All vendors> Vendor Vendor V3 x64 35 - Smart Software Solutions Gmbh V13 x64 35 - Smart Software Solutions Gmbh NC Wuxd Xinje Electric Co.,Ltd. m ersions(for expects only) Display outdated vC Ltd.	Version Description 4 3.5, 13, 10 A CODESYS 3.x SoftMot 4 4 3.5, 13, 10 A CODESYS 3.x SoftMot 4 4 3.5, 13, 10 A CODESYS 3.x SoftMot 4 4 3.5, 13, 10 A CODESYS SoftMot 4 5 3.5, 13, 10 CODESYS SoftMot 4 5 3.5, 13, 20 CODESYS SoftMot 7 versions *
Add Device me: Xinje_Cortex_Linux_SM_CNC kton: Append deviceInsert device Insert deviceInsert device Tring for a fullext search Name To CODESYS Softwoton RTC To CODESYS Softwoton RT To CODESYS To CODESYS Softwoton RT To CODESYS To CODESYS To CODESYS To CODESYS To CODESYS To CODESYS	Plug device Update device Vendor: All vendors> Vendor Vandor V3 35 - Smart Software Solutions Gmbh V3 364 35 - Smart Software Solutions Gmbh V3 35 - Smart Software Solutions Gmbh V2 Wuk Xinge Electric Co., Ltd. metersions (for experts only) Display outdated VC Ltd.	Version Description 4 3.5, 13, 10 A CODESYS 3.x Softwort 4 3.5, 13, 10 A CODESYS 3.x Softwort 4 3.5, 13, 10 A CODESYS 3.x Softwort 4 3.5, 13, 10 CODESYS Softworts 5 13, 20 CODESYS Softworts from 1 • • • • • • • • •
Add Device me: Xinje_Cortex_Linux_SM_CNC kton:	Elug device Update device Vendor: All vendors> Vendor Undor Usdate device Vandor Usdate device Vandor Usdate device Usdate devi	Version Description 1 3.5, 13, 10 A CODESYS 3.x SoftMot 4 3.5, 13, 10 A CODESYS 3.x SoftMot 4 3.5, 13, 10 A CODESYS SoftMoton Sc 3.5, 13, 10 CODESYS SoftMoton Sc 3.5, 13, 20 CODESYS Control from 1 versions *
Add Device Martine Cortex_Linux_SM_CNC Kolon:	Blug device Update device Vendor: Ali vendors> Vendor E V3 35 - Smart Software Solutions Gmbh V3 x64 35 - Smart Software Solutions Gmbh V4 x64 x64 x64 x64 x64 x64 x64 x64 x64 x6	Version Description 4 3.5.13.10 A CODESYS 3.x SoftMol 4 4 3.5.13.10 A CODESYS 3.x SoftMol 4 4 3.5.13.10 A CODESYS SoftMolton Sc 3.5.13.20 3.5.13.20 CODESYS SoftMolton Sc 3.5.13.20 versions *
Add Device me: Xinje_Cortex_Linux_SM_CNC ccton:		Version Description 1 3.5, 13, 10 A CODESYS 3.x SoftMot 4 3.5, 13, 10 A CODESYS 3.x SoftMot 4 3.5, 13, 10 A CODESYS SoftMoton Sc 3.5, 13, 10 CODESYS SoftMoton Sc 3.5, 13, 20 CODESYS Control from 1 versions *

After the PLC is added, the Device Manager will appear on the right side of the interface, select Xinje – Cortex-Linux-SM-CNC, right-click, and click Add Device to add the device.

	a fulltext search	Vendor:	<all vendors=""></all>			
Name		Vendor		Version	Description	
🖃 - 👘 F	ieldbusses					
	RN CANbus					
	EtherCAT					
_	= Brut Master					_
G	EtherCAT Master	3S - Smar	t Software Solutions GmbH	3.5.13.10	EtherCAT Master	l
	EtherCAT Master SoftMoti	on 3S - Smar	t Software Solutions GmbH	3.5.13.10	EtherCAT Master Soft	Mc
⊞ -∎	Ethernet Adapter					
٠						۲
Group	by category 📄 Display all version	ns (for experts on	ly) 📄 Display outdated ve	ersions		
a •	amore Ethor CAT Master					-
	endor: 35 - Smart Software Solutions	GmbH			1	
	ategories: Master	Gilbert		=		
v	ersion: 3.5.13.10					

Adding the device is completed, as shown in the following figure:



10-3-4. Gateway Communication Settings

Double click Xinje _Cortex_Linux_SM_CNC, in the Communication Settings, click Scan netwook. Search for PLCs in the same network segment, and click OK after finding them. The device name of the PLC in the following figure is XINJE-XG3.

Note: Ethernet connection requires that the IP address of the connected device (PC) and the IP address of the PLC are in the same network segment. Therefore, before connecting, please confirm whether the IP address of the PC meets the requirements.

Devices + 4 >	Xinje_Cortex_Linux_SM_CNC X	
Southerf Southerf	Cammunation Settings () Exercision acts Applications Backup and Restore Files Files Setect Device Setect the retroich path to the controller: Files Fi	Nay - Device +
< •)		Serial number 0252879579 (F 107 000)

After the communication is successful, the following figure is shown:

Xinje_Cortex_Linux_SM_CNC	×		
Communication Settings	Scan network Gateway -	Device -	
Applications			
Backup and Restore		•	通道搬击机变为绿色
Files			
Log		Gateway	
PLC Settings		Gateway-1	[0301.8076] (active)
		localhost	XINJE-XG3
PLC Shell		Port: 1217	Device Address: 0301.B076
Users and Groups			Target ID:
Access Rights			1707 0001
Symbol Rights			Target Type: 4102
Task Deployment			Target Vendor: Wuxi Xinje Electric Co.,Ltd.
Status			Target Version: 3.5.13.20
Files Log PLC Settings PLC Shell Users and Groups Access Rights Symbol Rights Task Deployment Ratus		Gateway Gateway P-Address: localhost Port 1217	(0301.6370) (dctwe) Device Name: XINJE-XG3 Device Address: 0301.8375 Target ID: 1707 0001 Target Type: 4102 Target Yendor: Wax Xinje Electric Co.,Ltd. Target Versiner 3.5.13.20

10-3-5. Scan the slave station device

In the Device tab, right click EtherCAT_Master, click Scan For Devices to scan the EtherCAT slave station device.



The scan result is shown in the figure below, click Copy All to Project to add all the scanned slaves to the project.

Devicename	Devicetype	A	Al
- LC3_AP_2	LC3-AP EtherCAT Adapter	0	j
XL_E16X16YT_2	XL-E16X16YT		
- LC3_AP_3	LC3-AP EtherCAT Adapter	0	j
XL_E16X16YT	XL-E16X16YT		
- LC3_AP_4	LC3-AP EtherCAT Adapter	0	j
XL_E16X16YT	XL-E16X16YT		
- LC3_AP_5	LC3-AP EtherCAT Adapter	0	I
XL_E4DA	XLE4DA		
XL_E8AD_A_31	XL-E8AD-A		
XL_E8AD_A_32	XL-E8AD-A		
XL_E8AD_A_33	XL-E8AD-A		
XL_E8AD_A_34	XL-E8AD-A		
/		>	>

After the slave device is successfully added, the "Devices" column is as shown below:



10-3-6. Set master station parameters

Devices 👻 🕈 🗙	K Mije_Cortex_Linux_SM_CNC	
Untitled1	General Di Autoconfin Masterfélauer	
Xinje_Cortex_Linux_SM_CNC (Xinje-Cortex-Linux-SM-CNC)	Ether CAT.	
Application	Sync Unit Assignment EtherCAT NIC Setting	
Library Manager	EtherCAT I/O Mapping Destination Address (MAC) FFFF - FFFF Broadcast Enable Redundancy	
Task Configuration	Source Address (MAC) 40-06-A0-D3-IE-2C Browse 2	
EtherCAT_Task	EtherCATIEC Objects Network Name eth 1	
EtherCAT_Master (EtherCAT Master)		
C3_AP (LC3-AP EtherCAT Adapter)	Select Network Adapter	
XL_E16X16YT (XL-E16X16YT)		
-C <empty1></empty1>	MAC address Name Description	
<empty1></empty1>	4006403122A eth0	
<cmpty1></cmpty1>		
<pre>C <empty1></empty1></pre>		
<pre> <empty1></empty1></pre>		
<pre>-K <empty1></empty1></pre>		
-C <empty1></empty1>		
-K <empty1></empty1>		
-K <empty1></empty1>	5	
<empty1></empty1>		
<pre>C <empty1></empty1></pre>	OK Abort	
<pre>C <empty1></empty1></pre>		1
<pre>cmpty1></pre>		
- MILC3 AP 10 C3 AP EtherCAT Adapter)		
K <€mpty1>		
<pre>K <empty1></empty1></pre>		
-K <empty1></empty1>		
Xinje_Cortex_Linux_SM_CNC	EtherCAT_Master X	
General	Value Autoconfig Master/Slaves Ether CAT	
Sync Unit Assignment	EtherCAT NIC Setting	
EtherCAT I/O Mapping	Destination Address (MAC) FF-FF-FF-FF-FF III Broadcast Enable Redundancy	
EtherCAT IEC Objects	Source Address (MAC) 0C-82-87-85-78-21 Browse	
Status	Select Network by MAC Select Network by Name	

Modify the task cycle for the master station device:

Devices – 🕈 🗙	🕤 Xinje_	Cortex_Linux_SM_CNC	🗙 👙 EtherCAT_T	Fask 🔀 EtherCAT_Master				
Dubtled1 Communicat SM_CONC (Vinje-Cortex-Linux-SM-CNC) Communicat		ation Settings Application		for I/O handling: Application \checkmark				
Application	Applications		PLC settings	ile in stop				
- 🎁 Library Manager	Backup and	Restore	Behaviour for out	tputs in Stop: Keep current values 🗸				
Task Configuration	Files		Always update va	riables: Enabled 1 (use bus cycle task if not used in any task) $$				
Iff EtherCAT_Master (EtherCAT Master) If LC3_AP (LC3-AP EtherCAT Adapter)	Log		Bus cycle options Bus cycle task:	Disabled (undate only if used in a task) Enabled i (use bus cycle task if not used in any task) Enabled z (always in bus cycle task) <urspectied></urspectied>				
	PLC Settings	raupa	Addtional settings Generate force	variables for IO mapping EnableDiagnosis fordevices				
- K <empty1></empty1>	03013 010 0	10000						
Devices -	μ Χ	Xinje_Cortex	_Linux_SM_CNC	EtherCAT_Task				
Untitled 1	• ^	Caparal		Bus cycle options				
Xinje_Cortex_Linux_SM_CNC (Xinje-Cortex-Linux-SM	1-CNC	General		Bus cycle task Use parent bus cycle setting V				
PLC Logic		Sync Unit Assignme	ent	Use parent bus cycle setting				
Application		The sector Vio Marrie		EtherCA1_Task				
Library Manager		EtherCAT I/O Mappi	ing					
		EtherCAT IEC Object	ts					
EtherCAT_Master (EtherCAT Master)		Status						
XL_E16X16YT (XL-E16X16YT)		Information						
K <empty1></empty1>								

10-3-7. Program

Add POUs. Right-click Application in the Devices column and select Add Object--POU.... After naming the added POU and selecting the programmatic method, click Add. In this example, the programming method continuous function chart (CFC) is selected.



Add POU
Create a new POU (Program Organization Unit)
Name: 程序命名
POU
Ivpe 编程类型
Program
Function <u>B</u> lock
Extends:
Implements:
Access specifier:
Method implementation language:
Continuous Eurotion Chart (CEC)
© <u>F</u> unction
Return type:
编程语言
Implementation language:
Continuous Function Chart (CFC)
添加 Add Cancel

Double-click the added POU to program in the POU interface. Note: POU should be added to the task, because the subsequent compilation command will only compile the program added to the task. If a POU is created that is not added to the task, the compile command does not syntax check the POU. Right-click EtherCAT_Task, select Add object--Program call, fill in "POU" in the Add Program call dialog box, and finally click Add.



Add Program call	×
A program call	
POU to call:	
POU	
Comment:	
Add Ca	incel

Define variables. There are two ways to try, one defines ordinary variables, and then establishes a connection. There is also a direct definition of the mapped address variable, QX0.1 is the mapped address of the module Y1 (see 10 for details) to establish a variable connection).

ntitled8	-	^		1	PROGRAM POU
Xinie Cortex Linux SM CNC (Xinie-Cortex-Linux	x-SM-CNC		Β	2	VAR
				3	OUTPOT:BOOL;
				4	OUTPOT1 AT%QX0.1 :BOOL;
= Q Application				5	END_VAR
📲 🎁 Library Manager				6	
POU (PRG)					
🗄 🌃 Task Configuration					
🖮 🍪 EtherCAT_Task					
POU					
EtherCAT Master (EtherCAT Master)					

10-3-8. Create variable connection

Double-click the selected module, select Moduie I/O Mapping, each channel has a corresponding address, and the address can be specified when creating a variable. Or double-click the Y0 channel Variable.

Devices • 4 3	Xinje_Cortex_Linux_SM	ONC StherCAT_Ta	sk 💮 EtherCAT_Maste	K XL_E	40A_5_1	XL_E16X16YT X		-
Untiled1	Startup Parameters	Find	Filter	Show all		- 💠 Ac	Id FB for IO channel + Go	to instance
In the conex Linux SM_CHC (Intercontex Linux SM-CHC) B III PLC Logic		Variable	Mapping Char	nel Address	Type Uni	t Description		^
- O Application	Module I/O Mapping	10	Y0	%CX0.0	BIT	YO		10
Library Manager	Information		Y1	%OX0.1	BIT	YI		
= 20 Task Configuration			Y2	%OX0.2	BIT	Y2		
EtherCAT Task		10	Y3	%CX0.3	BIT	Y3		
= fill EtherCAT Master (EtherCAT Master)			Y4	%GX0.4	BIT	¥4		
B M LC3 AP (LC3-AP EtherCAT Adapter)		50	YS	%OX0.5	BIT	YS		
X ELEXIEVT DL ELEXIEVT)		10	Y6	%CX0.6	BIT	Y6		
C (Fronty 1)		10	¥7	%CN0.7	RIT	¥7		
C <emoty1></emoty1>			Y10	%OX1.0	BIT	Y10		
C <empty1></empty1>		50	Y11	%OX1.1	BIT	Y11		
C (Fronty 1)		10	¥12	%OX1.2	BIT	¥12		
C (Fronty 1)			¥13	%OX1.3	RIT	Y13		
-C <fmoty1></fmoty1>			Y14	%OX1.4	BIT	Y14		
C (Fronty 1)		10	¥15	960X1.5	RIT	Y15		
C (Fronty 1)			¥16	%OX1.6	BIT	¥16		
C (Empty 1)			¥17	5-OX1.7	BIT	¥17		
C (Finity1)		- 10	×0	9600.0	BIT	112		10.
C (Fronty 1)		- 10	XI	9600.1	BIT	XI		
C (Emply 1)		- 10	¥2	96700.2	BIT	32		
L' (Emply)			12	96TV0 2	err	x2		
Constal >			×5	96700.4	err	X4		
Comparison Comparison			X4 VE	BLOO E	err	X4		
E ICI AD 10 CLAD EtherCAT Adapter)			X5 X6	9600.5	BIT	X5		
		1	x3	96700.7	RTT	x7		~
Control Control (N/	782.00.7	01	Ar Internet		
C (Emphyla		10		Reset mapping	Arways up	date variables: Use pa	ent device setting	~
C (Freehyl)		🍫 = Create new vari	iable 🌍 = Map to ex	sting variable				

Select the normal variable you created.

Variables	A Name			Type			Address		Orig	in	T
Variables	E - C Applicati	on		Applicatio	7		Address		Ong		
				PROGRAI							
		OUTPOT		BOOL							Ľ
		OUTPOT1		BOOL			%QX0.1				
	🖷 🛛 🎑 IoConfig	_Globals		VAR_GLOB	IAL						
		nercatLib		Library				10	ODrvEtherC	4 <i>T, 3.5</i>	
	SM3_Bas	sic		Library				5	M3_Basic, 4	4.0.1 (
				Laur an y						(
Structured view							<u>F</u> ilter:	None			~
				🖂 Inse	ert <u>w</u> ith a	argume	ents	Insert	t with <u>n</u> ames	pace prefix	×
OUTPOT: BOOL; (VAR)											í
											1
									ОК	Cancel	
	- Create new	Valiable		- map	LU CAISU	ing var					
	ciad	valiable	Eller Cha	9 - Mapa	LU EXIST	illy vai			us 10 shaasal	*** Co. to	. 1
up Parameters	Find	valiable	Filter Show	w all	LU EXIST	ing var	1001C	🕈 Add FB fo	or IO channel	⁺ Go to	in
up Parameters ule I/O Mapping	Find Variable	Mapping	Filter Show	w all Address	Туре	Unit	Description	🕈 Add FB fo	or IO channel	[→] ≣ Go to) in
up Parameters ule I/O Mapping	Find Variable	Mapping	Filter Show Channel Y0	w all Address	Туре ВІТ	Unit	Description Y0	🕈 Add FB fo	or IO channel	+ Go to) in
up Parameters ule 1/0 Mapping mation	Find Variable	Mapping	Filter Show Channel Y0 Y1	w all Address %QX0.1	Type BIT BIT	Unit	Description Y0 Y1	🕈 Add FB fo	or IO channel	L. →⊟ Go to) in
up Parameters ule I/O Mapping mation	Find Variable	Mapping	Filter Show Channel Y0 Y1 Y2	w all Address %QX0.1 %QX0.2	Type BIT BIT BIT	Unit	Description Y0 Y1 Y2	🕈 Add FB fo	or IO channel	u. →≣Go to) in
up Parameters ule I/O Mapping mation	Find Variable	Mapping	Filter Show Channel Y0 Y1 Y2 Y3	w all Address %QX0.0 %QX0.1 %QX0.2 %QX0.3	Type BIT BIT BIT BIT	Unit	Description Y0 Y1 Y2 Y3	🕒 Add FB fc	or IO channel	[→] ≣ Go to) îr
up Parameters ule I/O Mapping mation	Find Variable	Mapping *	Filter Show Channel Y0 Y1 Y2 Y3 Y4	w all Address %QX0.0 %QX0.1 %QX0.2 %QX0.3 %QX0.4	Type BIT BIT BIT BIT BIT	Unit	Description Y0 Y1 Y2 Y3 Y4		or IO channel	⁺ Go to) ir
up Parameters ule 1/O Mapping mation	Find Variable Application.POU.output	Mapping	Filter Show Channel Y0 Y1 Y2 Y3 Y4 Y5	w all Address %QX0.0 %QX0.1 %QX0.2 %QX0.3 %QX0.4 %QX0.5	Type BIT BIT BIT BIT BIT	Unit	V0 V1 Y2 Y3 Y4 Y5	🕈 Add FB fo	or IO channel	[→] ∭Go to) ir
up Parameters ule 1/0 Mapping mation	Find Variable * Application.POU.output * * * * *	Mapping *	Filter Show Channel Y0 Y1 Y2 Y3 Y4 Y5 Y6	w all Address %QX0.0 %QX0.1 %QX0.2 %QX0.3 %QX0.4 %QX0.5 %QX0.5 %QX0.6	Type BIT BIT BIT BIT BIT BIT	Unit	VI VI V2 V3 V4 V5 V6	🕈 Add FB fo	or IO channel	uu [→] ∭Go to) ir
up Parameters Jel I/O Mapping mation	Find Variable ** Application.POU.output ** ** **	Mapping ~	Filter Show Channel Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7	w all Address %QX0.0 %QX0.1 %QX0.2 %QX0.3 %QX0.4 %QX0.5 %QX0.6 %QX0.7	Type BIT BIT BIT BIT BIT BIT BIT	Unit	V0 Y1 Y2 Y3 Y4 Y5 Y6 Y7	Add FB fc	or IO channel	u. → Go to) îr
up Parameters ule I/O Mapping mation	Find Variable - To Application.POU.output - To - To	Variable Mapping *	Filter Show Channel Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7 Y10	Address 46000000000000000000000000000000000000	Type BIT BIT BIT BIT BIT BIT BIT BIT	Unit	V Description Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7 Y10	✿ Add FB fc	or IO channel) in
up Parameters ule 1/O Mapping mation	Find Variable * Application.POU.output *** *** *** ***	Mapping	Filter Show Channel Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7 Y10 Y11	w all Address %QX0.1 %QX0.2 %QX0.3 %QX0.3 %QX0.5 %QX0.5 %QX0.6 %QX0.7 %QX1.0 %QX1.1	Type BIT BIT BIT BIT BIT BIT BIT BIT BIT BIT	Unit	V0 V1 V2 V3 V4 V5 V6 V7 V10 V11	Add FB fc	or IO channel	⁺ ∥ Go to) in
up Parameters Jie I/O Mapping mation	Find Variable * Application.POU.output * Papication.POU.output * Papication.POU.output	Mapping	Filter Show Channel Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7 Y10 Y11 Y12	w all Address %QX0.1 %QX0.2 %QX0.3 %QX0.4 %QX0.6 %QX0.6 %QX0.6 %QX0.6 %QX0.7 %QX1.0 %QX1.1	Type BIT BIT BIT BIT BIT BIT BIT BIT BIT BIT	Unit	V Description Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7 Y10 Y11 Y12	Add FB fc	or IO channel	m [→] Go to) în
up Parameters Jie I/O Mapping mation	Find Variable * Application.POU.output	Mapping	Filter Show Channel Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7 Y10 Y11 Y12 Y13	w all Address %620.0 %200.1 %200.3 %200.3 %200.4 %200.5 %200.6 %200.6 %200.7 %200.6 %200.7 %200.1 %200.1 %200.1	Туре ВІТ ВІТ ВІТ ВІТ ВІТ ВІТ ВІТ ВІТ ВІТ ВІТ	Unit	V0 Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7 Y10 Y11 Y12 Y13	Add FB fc	or IO channel	m [→] Go to) in
up Parameters ule 1/O Mapping mation	Find Variable * Application.POU.output * * * * * * * * * * * * * * * * * *	Mapping	Filter Show Channel Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7 Y10 Y11 Y12 Y12 Y13 Y14	Address %Qx0.1 %Qx0.2 %Qx0.3 %Qx0.4 %Qx0.6 %Qx1.1 %Qx1.13 %Qx1.4	Type BIT BIT BIT BIT BIT BIT BIT BIT BIT BIT	Unit	Pescription Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7 Y10 Y11 Y12 Y13 Y14	Add FB fc	or IO channel	m [→] Go to) in
up Parameters ule 1/O Mapping mation	Find Variable * Application.POU.output * 0 * 0 * 0 * 0 * 0 * 0 * 0 * 0 * 0 * 0 * 0 * 0 * 0 * 0 * 0 * 0 * 0 * 0	Mapping	Filter Show Channel Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7 Y10 Y11 Y12 Y13 Y14 Y15	w all Address %eqx0-0 %eqx0-0 %eqx0.0 %eqx0.0 %eqx0.0 %eqx0.0 %eqx0.0 %eqx0.0 %eqx0.0 %eqx0.1 %eqx0.0 %eqx0.1 %eqx0.1 %eqx0.1 %eqx0.1 %eqx0.1 %eqx0.1 %eqx0.1 %eqx1.1 %eqx1.2 %eqx1.3 %eqx1.4 %eqx1.5	Type BIT BIT BIT BIT BIT BIT BIT BIT BIT BIT		V1 V2 V3 V4 V5 V6 V7 V10 V11 V11 V12 V11 V12 V13 V14 V15	Add FB fc	or IO channel	uu ⁺ Go to) in
up Parameters Jel I/O Mapping mation	Find Variable	Mapping	Filter Show Channel Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7 Y10 Y11 Y12 Y13 Y14 Y15 Y15 Y16	w all Address %qqx0.0 %qQx0.1 %qQx0.2 %qQx0.3 %qQx0.4 %qQx0.5 %qQx0.6 %qQx0.6 %qQx1.0 %qQx1.1 %qQX1.2 %qQX1.3 %qQX1.4 %qQX1.4	Type BIT BIT BIT BIT BIT BIT BIT BIT BIT BIT	Unit	V1 V2 V3 V4 V5 V6 V7 V10 V11 V12 V11 V12 V13 V14 V12 V13 V14 V15 V15 V16	Add FB fc	or IO channel	m ⁺ Go to) in
up Parameters J/O Mapping mation	Find Variable • Application.POU.output • A	Mapping	Filter Show Channel Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7 Y10 Y11 Y12 Y11 Y12 Y13 Y14 Y15 Y16 Y17	Address %QX0.0 %QX0.1 %QX0.2 %QX0.3 %QX0.6 %QX0.6 %QX0.7 %QX1.0 %QX1.1 %QX1.2 %QX1.4 %QX1.5 %QX1.5 %QX1.5 %QX1.5 %QX1.5 %QX1.7	Туре ВІТ ВІТ ВІТ ВІТ ВІТ ВІТ ВІТ ВІТ ВІТ ВІТ		V1 V2 V3 V4 V5 V6 V7 V10 V11 V12 V11 V12 V13 V14 V15 V14 V15 V14 V15 V14 V15 V11 V12 V11 V12 V13 V14 V12 V10 V17 V14 V17 V17 V17 V17 V17 V17 V17 V17 V17 V17	Add FB fc	or IO channel	uur ⁺ ≣ Go to) in
up Parameters ule 1/O Mapping mation	Find Variable Application.POU.output	Mapping	Filter Show Channel Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7 Y10 Y11 Y12 Y12 Y11 Y12 Y13 Y14 Y15 Y16 Y17 X0	wall Address 46200-0 96200.1 96200.2 96200.3 96200.4 96200.5 96200.6 96201.1 96	Туре 817 817 817 817 817 817 817 817 817 817		Vi V	Add FB fc	or IO channel	uu ⁺ ∎Go to) în
up Parameters ule 1/O Mapping mation	Find Variable ** Application.POU.output ** ** ** ** ** ** ** ** ** ** ** ** **	Mapping	Filter Show V0 V1 V2 V3 V4 V5 V6 V7 V7 V10 V11 V12 V13 V14 V15 V14 V15 V14 V15 V14 V15 V14 V15 V14 V15 V13 V1 V1 V1 V3 V3 V4 V3 V3 V4 V3 V4 V3 V4 V3 V4 V3 V4 V3 V4 V5 V5 V5 V5 V5 V7 V3 V4 V5 V5 V7 V5 V5 V7 V5 V7 V7 V7 V7 V7 V7 V7 V7 V7 V7 V7 V7 V7	Address \$6200.0 \$6200.1	Туре ат ат ат ат ат ат ат ат ат ат ат ат ат	Unit	V1 V2 V3 V4 V5 V6 V7 V7 V10 V11 V12 V10 V11 V12 V14 V15 V16 V15 V16 V17 V14 V15 V16 V17 V14 V12 V10 V1 V1 V3 V3 V3 V4 V3 V3 V4 V3 V4 V3 V4 V5 V5 V5 V3 V4 V5 V5 V7 V3 V4 V5 V5 V7 V3 V4 V5 V5 V7 V7 V7 V5 V7 V7 V7 V7 V7 V7 V7 V7 V7 V7 V7 V7 V7	Add FB fc	or IO channel	uu ⁺ Go to) in
up Parameters ule I/O Mapping mation	Find Variable * Application.POU.output * Application.POU.output * 0 * 0 * 0 * 0 * 0 * 0 * 0 * 0 * 0 * 0	Mapping	Filter Show Channel Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7 Y10 Y11 Y12 Y11 Y12 Y13 Y14 Y15 Y16 Y17 X0 X1 X2	Address \$40000 \$40000 \$40000 \$40000 \$40000 \$40000 \$40000 \$40000 \$40000 \$40000 \$40000 \$40000 \$40000 \$40000 \$40000 \$40000 \$400000 \$400000 \$400000 \$400000 \$400000 \$400000 \$4000000 \$40000000000 \$4000000000000000000000000000000000000	Туре 817 817 817 817 817 817 817 817 817 817	Unit	V1 V2 V3 V4 V5 V6 V7 V10 V11 V12 V13 V14 V12 V13 V14 V12 V13 V14 V12 V13 V14 V12 V13 V14 V12 V13 V14 V12 V13 V14 V12 V14 V14 V14 V14 V15 V14 V14 V15 V14 V14 V15 V14 V15 V14 V14 V15 V14 V14 V15 V14 V14 V15 V14 V15 V14 V15 V14 V14 V15 V14 V14 V15 V14 V14 V15 V14 V14 V15 V14 V14 V15 V14 V14 V14 V14 V14 V14 V14 V14 V14 V15 V14 V14 V14 V14 V14 V14 V14 V14 V14 V14	Add FB fc	or IO channel	m ⁺ Go to) in
up Parameters ule 1/O Mapping mation	Find Variable * Application.POU.output * * Application.POU.output * * * * * * * * * * * * * * * * * * *	Mapping	Filter Show Channel Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7 Y10 Y11 Y12 Y13 Y14 Y13 Y14 Y15 Y16 Y17 X0 X1 X2 X3	wall Address %eqx0.0 %eqx0.1 %eqx0.3 %eqx0.4 %eqx0.5 %eqx0.6 %eqx0.7 %eqx1.0 %eqx1.1 %eqx1.5 %eqx1.4 %eqx1.5 %eqx1.7 %eqx0.0 %eqx1.7 %eqx0.0 %eqx0.1	Туре 817 817 817 817 817 817 817 817 817 817		Pescription Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7 Y10 Y11 Y12 Y13 Y14 Y15 Y14 Y15 Y16 Y17 X0 X1 X2 X3	Add FB fc	or IO channel	uur ⁺ ≣ Go to) in
up Parameters ule 1/O Mapping mation	Find Variable Application.POU.output	Mapping	Filter Shoo Channel Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y17 Y10 Y11 Y12 Y13 Y14 Y14 Y15 Y16 Y17 X0 X1 X2 X3 X4	wall Address \$4200-0	Туре ват ват ват ват ват ват ват ват ват ват		Via V1 V2 V3 Y4 Y5 Y6 Y7 Y10 Y11 Y12 Y13 Y14 Y15 Y16 Y17 X0 X1 X2 X3 X4	Add FB fc	or IO channel	uu ⁺ Go to) in
up Parameters Lile I/O Mapping mation	Find Variable * Application, POU, output * Application, POU, output * * Application, POU, output * * * * * * * * * * * * * * * * * * *	Mapping	Filter Show V0 V1 Y2 Y3 Y4 Y5 Y6 Y7 Y10 Y11 Y12 Y10 Y11 Y12 Y13 Y14 Y15 Y16 Y17 X0 X1 X2 X3 X4 X5	Address \$6200.0 \$6200.0 \$6200.0 \$6200.0 \$6200.0 \$6200.0 \$6200.0 \$6200.0 \$6200.0 \$6200.0 \$6200.0 \$6200.0 \$6200.0 \$6200.0 \$6200.0 \$6200.0 \$6200.0 \$6200.0 \$6200.0 \$6200.1 \$6200.0 \$6200.1 \$6200.0 \$6200.0 \$6200.0 \$6200.0 \$6200.0 \$6200.0 \$6200.0 \$6200.0 \$6200.0 \$6200.0 \$6200.0	Туре віт віт віт віт віт віт віт віт віт віт		V1 V2 V3 V4 V5 V7 V7 V7 V10 V11 V12 V10 V11 V12 V13 V14 V15 V16 V17 V14 V15 V16 V17 V14 V15 V14 V15 V14 V12 V3 V3 V4 V3 V4 V3 V4 V4 V5 V5 V5 V5 V6 V7 V7 V7 V7 V7 V7 V7 V7 V7 V7 V7 V7 V7	Add FB fc	or IO channel	uu ⁺ Go to) in
up Parameters ule I/O Mapping mation	Find Variable • Application.POU.output • A	Mapping	Filter Show Channel Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7 Y10 Y11 Y12 Y13 Y14 Y14 Y15 Y16 Y11 Y15 Y16 Y17 X0 X1 X2 X3 X4 X5 X6	Address \$40000	Туре 817 817 817 817 817 817 817 817		V10 V12 V12 V1 V2 V3 V4 V5 V6 V7 V10 V11 V12 V13 V14 V12 V13 V14 V12 V13 V14 V12 V13 V14 V12 V13 V14 V12 V10 V10 V10 V10 V1 V1 V2 V3 V3 V4 V1 V2 V3 V4 V3 V4 V4 V5 V5 V6 V1 V1 V2 V3 V4 V4 V5 V5 V6 V7 V7 V7 V7 V7 V7 V7 V7 V7 V7 V7 V7 V7	Add FB fc	or IO channel	uu ⁺ ≣ Go to) in
up Parameters ule 1/0 Mapping mation	Find Variable * Application.POU.output * * Application.POU.output * * * * * * * * * * * * * * * * * * *	Mapping **	Filter Shoo Channel Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y17 Y10 Y11 Y12 Y17 Y10 Y11 Y12 Y13 Y14 Y15 Y14 Y15 Y14 Y15 X0 X1 X1 X2 X3 X4 X5 X5 X6 X7	Address Address 46200-0 96200.1 96200.3 96200.4 96200.5 96200.6 96201.0 96201.1 96201.1 96201.1 96201.1 96201.1 96201.1 96201.1 96201.1 96201.1 96201.1 96201.1 96201.1 96201.1 96201.6 96200.1 96100.0 96100.1 96100.5 96100.5 96100.7	Type 81T		Vi V	Add FB fc	or IO channel	uu ⁺ ∎ Go to) in
up Parameters ule 1/O Mapping mation	Find Variable ** Application, POU.output **	Mapping	Filter Show Channel Y0 Y1 Y2 Y3 Y4 Y5 Y6 Y7 Y10 Y11 Y12 Y13 Y11 Y15 Y16 Y17 Y14 Y15 Y16 X0 X1 X1 X2 X3 X4 X5 X5 X6 X7 Y2 Y2 Y1	wall Address \$4000<	Type 81T 81T		Vi Y2 Y3 Y4 Y5 Y6 Y7 Y10 Y11 Y12 Y13 Y14 Y15 Y16 Y17 Y18 Y14 Y15 Y16 Y17 X0 X1 X2 X3 X4 X5 X6 X7	Add FB fc	or IO channel	u ⁺ Go to) in

Execute is shown in the following figure:



If cannot connecting after stop and run again, please click Reset warm.

	Onl	ine	Debug	Tools	Window	Help		
1	O Ş	Log	jin			Alt+F8		
l	©ğ	Log	jout		C	trl+F8		
		Download						
		Online Change						
		Sou	irce downl	oad to c	onnected d	evice		
		Multiple Download						
		Res	et warm					
		Res	et cold					
		Res	et origin					
		Simulation						
		Sec	urity			•		
		Ор	erating Mo	ode		•		

Write TRUE to the POU variable:

Devices 👻 🕂 🗙	POU X					
Untitled1	Xinje_Cortex_Linux_SM_CNC.Application.POU					
🖹 😏 🛐 Xinje_Cortex_Linux_SM_CNC [connected] (Xinje-Cortex-L	Expression	Туре	Value	Prepared value	Address	Comment
E III PLC Logic	output	BOOL	TRUE			
Application [run]	ø output1	BIT	TRUE		%QX0.1	
Library Manager						
POU (PRG)						
🖹 🎆 Task Configuration						
EtherCAT_Task						
EtherCAT_Master (EtherCAT Master)	REIDEN					
=- 🧐 🔢 LC3_AP (LC3-AP EtherCAT Adapter)						
- 🤆 🖬 XL_E16X16YT (XL-E16X16YT)						

Remote IO module status display.

Devices - 4 ×	POU N XL_E16X1	IGYT X								
Ottibled1 A	Startup Parameters	Find		Filter Sho	w all			- 🕂 Add FB for	IO cha	nnel → Go to ins
In the context i	Module I/O Mapping	Variable	Mapping	Channel	Address	Туре	Current Value	Prepared Value	Unit	Description
Application [run]		Application.POU.output	*	YO	%QX0.0	BIT	TRUE			YO
Library Manager	Information	- **		Y1	%QX0.1	BIT	TRUE			Y1
POU (PRG)		- *		Y2	%QX0.2	BIT	FALSE			Y2
Task Configuration		**		Y3	%QX0.3	BIT	FALSE			Y3
EtherCAT_Task		- **		Y4	%QX0.4	BIT	FALSE			Y4
🖻 😏 🛐 EtherCAT_Master (EtherCAT Master)		- **		Y5	%QX0.5	BIT	FALSE			Y5
🖶 😏 📆 LC3_AP (LC3-AP EtherCAT Adapter)		- 50		Y6	%QX0.6	BIT	FALSE			Y6
		- 50		Y7	%QX0.7	BIT	FALSE			Y7
<pre>K <empty1></empty1></pre>		- **		Y10	%QX1.0	BIT	FALSE			Y10
<pre>C <empty1></empty1></pre>		- 50		Y11	%QX1.1	BIT	FALSE			Y11
<pre>K <empty1></empty1></pre>		- **		Y12	%QX1.2	BIT	FALSE			Y12
<pre>C <empty1></empty1></pre>		**		Y13	%QX1.3	BIT	FALSE			Y13
<pre>K <empty1></empty1></pre>		- **		Y14	%QX1.4	BIT	FALSE			Y14
<pre>C <empty1></empty1></pre>		- **		Y15	%QX1.5	BIT	FALSE			Y15
<pre>K <empty1></empty1></pre>		- **		Y16	%QX1.6	BIT	FALSE			Y16
<pre>K <emptv1></emptv1></pre>		-50		Y17	%OX1.7	BIT	FALSE			Y17
<pre>K <emptv1></emptv1></pre>		1					Reset mapping	Always update vari	ables:	Use narent device setti
<pre>K <empty1></empty1></pre>		<u>.</u>					PP.III B			and parente device devid
- K <empty1></empty1>		Create new variable	🍫 = Ma	p to existing	variable					

10-3-9. Slave station parameter

Double click LC3-AP slave station, select Enable Expert Settings.

Devices 🗸 🕈 🗙	POU K XL_E16X16YT	LC3_AP X	
Constant Constant	General Process Data Startup Parameters EtherCAT IEC Objects Status Information	Address AutoIncAddress EtherCATAddress 1001 Distributed Clock Diagnostics Current State Operational	Additional Expert Settings EtherCATT
CEmpty 1			

It will show Online and CoE Online.

General	Address	Additional	
Expert Process Data	AutoIncAddress 0 *	Enable Expert Settings	EtherCAT.
	EtherCAT Address 1001 🗘	Optional	
Process Data	Distributed Clock		
Startup Parameters	Diagnostics		
Online	Current State Operational		
CoE Online	> Startup checking	D Timeouts	
EtherCAT IEC Objects	DC cyclic unit control: assign to local µC		
	D Watchdog		
Status	Identification		
Information	Disabled		
	 Configured Station Alias (ADO 0x0012) 	Value :	001 🜩
		Actual address)
	Explicit Device Identification (ADO 0x0134)		
	🔿 Data Word (2 Bytes)	ADO (hex)	l6#0 🌲
Click Online to check the slave station status, make sure it is in OP status.

General	State Machine	
Eve est Dre sees Data	Init Bootstrap Current State: Operational	
Expert Process Data	Pre-Op Safe-Op Requested State: Operational	
Process Data	Op	
Startup Parameters	File access over EtherCAT	
Online	Download Upload	
CoE Online	E2PROM Access	
EtherCAT I/O Mapping	Write E ² PROM Read E ² PROM Write E ² PROM XML	
EtherCAT IEC Objects		
Status		
Information		

Click CoE Online, modify the module configuration parameters at 16#5000, modify the filter time and positive and negative logic. After the modification is completed, the slave station needs to be powered on again to take effect. For details, please refer to chapter 3-5.

General	Read Objects	🗌 Auto Update 💿 Offlin	e from ESI I	File 🔿 Online f	rom Device
Expert Process Data	Index:Subindex	Name	Flags	Туре	Value
	16#100A:16#00	Software Version	RO	STRING(6)	'2.1.0'
Process Data	16#1010:16#00	Build Date	RO	STRING(12)	'May 19 2020'
Startup Parameters	≞ 16#1011:16#00	Data Reset			
	· 16#5000:16#00	ConfigurableDataXL-E16X16YT	RW	USINT	20
Online	:16#01	X0-X3滤波时间(ms)	RW	USINT	0
CoE Online	:16#02	X4-X7滤波时间(ms)	RW	USINT	0
	:16#03	X10-X13滤波时间(ms)	RW	USINT	0
EtherCAT IEC Objects	:16#04	X14-X17滤波时间(ms)	RW	USINT	0
	:16#05	X3逻辑,X2逻辑,X1逻辑,X0逻辑	RW	USINT	0
Status	:16#06	X7逻辑,X6逻辑,X5逻辑,X4逻辑	RW	USINT	0
Information	:16#07	X13逻辑,X12逻辑,X11逻辑,X10逻辑	RW	USINT	0
	:16#08	X17逻辑,X16逻辑,X15逻辑,X14逻辑	RW	USINT	0
	:16#09	Y3逻辑,Y2逻辑,Y1逻辑,Y0逻辑	RW	USINT	0
	:16#0A	Y7逻辑,Y6逻辑,Y5逻辑,Y4逻辑	RW	USINT	0
	:16#0B	Y13逻辑,Y12逻辑,Y11逻辑,Y10逻辑	RW	USINT	0
	:16#0C	Y17逻辑,Y16逻辑,Y15逻辑,Y14逻辑	RW	USINT	0
	± 16#9000:16#00	Adapter status			
	<u></u>				



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