XINJE XL-NES-ED

Fast manual

Thanks for purchasing XINJE XL series PLC and extension module. This manual will introduce the electric features and using method of XL series extension ED module. Please read this manual carefully before using the products, make sure the wiring operation is safe.

XL series communication ED module features:

- > XL series communication ED module is used to extend RS232 or RS485 port
- XL-NES-ED can be used as the left extension module of XL series PLC, but for RS232 and RS485, only can use one of them.
- XL-NES-ED is chip design, small size.

Safety precautions

Control system design attentions A Dangerous!

- Make sure design the safety circuit, to ensure that the control system can still work safety when the external power supply cut off or PLC broken.
- Make sure set emergency braking circuit, protection circuit, interlock circuit of forward-reverse running in PLC external circuit and upper-lower limit switch to prevent from machine damage.
- In order to make the equipment safe operation, please design external protection circuit for important output signal.
- PLC CPU will close all the output when detecting the system error; the output will lose control when the PLC circuit has problem. Please design suitable external control circuit to ensure the device working normally.
- If the PLC relay or transistor unit is broken, the output cannot be ON or OFF.
- The PLC is designed for indoor environment, the lightning protection must be installed in the power supply system to avoid PLC and other device damage.

Installation and wiring attentions

▲ \Lambda Dangerous!

- Do not use the PLC in the following environment: dust, soot, corrosive gases, flammable gas, high temperature, condensation, vibration, impact, lightning, fire.
- Do not let the metal scrap and wire head drop into the ventilation hole of PLC, otherwise it will cause fire or error operation.
- Do not cover the ventilation hole of PLC, otherwise it will cause fire, error operation.
- The I/O wiring must be fixed enough, otherwise the bad contactor will cause fault.
 Attention!
- It can use external power supply for extension module DC24V power.
- Please use shield cable for high frequency I/O wiring to avoid interference.

Run and maintenance

▲ \land Dangerous!

- Please connect all the cable include PLC, extension module and BD board after shutting down the power supply.
- Please operate as the manual for online operation, forced output, RUN, STOP.

Attention!

- Please discard the product as industrial waste.
- Make sure cut off the power supply when installing or uninstalling the extension card.

Product information

Naming rule

<u>XL- NES</u> - <u>ED</u>

Product series XL: XL series extension ED module
 Communication type S: RS232 communication ED module

- E: RS485 communication ED module
- ③ Extension type ED: extension ED module

Basic parameters

XL series PLC supports the expansion of one XL-NES-ED (not supported by XL1 series).

Table 1: XL series extension communication ED module specification

Installation mode	Directly installed on the guide rail of DIN46277
	(width 35mm)
Using environment	No corrosive gas
Environment temperature	0°C~55°C
Environment humidity	5~95%

Product appearance

Product structure





Name		Function
	PWR	The LED lights when the ED module has power supply
Indicator	COM	The LED lights when the ED module communication
		port works well
	А	RS485+
	В	RS485-
	SG	Signal ground
Wiring	FG	Connect to ground
terminals	NC	Vacant terminal
	TX	RS232 data send
	RX	RS232 data receive
	SG	Signal ground

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 0.25-1.5 mm²

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

Product dimension and installation

Product installation

(1) Find the COM3 port on the left side of the PLC and the right side of the module, and install them in alignment, as shown in the following figure:
 (2) Push the sliding latch on the top and bottom of the module. Fix the module, as shown in the figure below:



Note: please install in the state of power failure. Do not operate with power on!

Installation notes

Do not install the module in below environment:

- Direct sunlight
- Environment temperature out of range 0-50°C
- Environment humidity out of range 35%-85% RH
- Condensation as severe changes in temperature
- Corrosive gas and flammable gas
- Dust, iron filing, salt, fume
- Vibration and impact
- Spray oil, water and medicine
- Strong magnetic field and strong electric field

Product dimension (unit: mm)

XL series extension ED module dimension is shown as below:





Electrical design reference

Configuration mode

Parameter configuration of XL series extended communication ED module requires XDPpro software V3.5.1 and above version or Xinje config tool to configure. If the extended ED module is only used for RS232 or RS485 communication, it can be configured through XDPpro software or Xinje config tool. If the extension ED module is used for X-NET communication, please configure through Xinje config tool.

• Configure the RS232 or RS485 through XDPpro software V3.5.1 and up Click configure/PLC comm port settings in the XDPpro software:





1	2	3			
t series	XL: XI	series extens	sion ED modul	e	

Click modbus in the following window:



Please choose COM3 in the follow window, other paramreters please set as you need. After setting, click write to PLC. Then cut the power of PLC and power on again to make the settings effective.

PLC1 - Serial Port Set					×	
PLC Config	Add - Remove	Modbus Comm	unication Parar	ns		-
Password	COM3	Comport:	COM3 ∨	Station Num:	1	
PLC Serial Port ethemet		Baudrate:	19200br 🗸	Mode:	RTU N	
Pulse		Databits:	8 4	Send Delay Time(ms):	3	
BD		Checkbits:	Even v	Response timeout(ms):	300	
4GBOX		Stopbits:	1 v	Retry Times:	3	
WBOX		Frame TimeOut(ms):	0			
SystemConfig		notice:Config el	ffictive need to	reboot PLC		_
		XNET is config	ured by the cor	figuration tool		
	Read	From PLC	Write To PLC	ОК	Cancel	

• XINJEConfig can configure the Modbus and X-NET mode of extension ED module. Here will explain how to configure the X-NET mode through Xinje config tool.

Installation of XINJEConfig

Please find the XNetSetUp.exe in the XDPpro installation folder. Double click it to install the Xinje config tool.

Using steps of XINJEConfig

Here we take an example of two XL3-16T PLCs communicate in X-NET mode through the XL-NES-ED.

Note: when using software to configure PLC, first use USB download cable to connect PLC with computer. The USB download cable here is the download cable of the HMI, as shown in the following figure:



The USB download cable can only be used after installing the driver. Since the current USB driver is built into Xinjeconfig tool, the USB driver will be installed automatically after installing Xinjeconfig tool.



(2) Click PLC to show below window. Select Xnet protocol and COM3 port. Then click Find device.

	PLC	CLinkForm	_ 🗆 🗙
FindDevice	AddrLink		
Pro	tocol:	XNet	v
Lini	kPort:	СОМЗ	¥
	Find with ID		
De	vice ID:		
			Find device

(3) It will show PLC configuration window:

ComportConfig				
ComportNo 3 € ChooseNet ● X_Net ○ Modbus ● Free ● PC	X_NET NetID 32768 StationID 1.€ NetType OMMS ✓ BaudRate 19200 ✓			
ChoosePHY RS485 ReadConfig WriteConfig Note:Configration will take effect after the power is re-up	OMMS_SlaverList Cycle			

(4) XL3-16T can only expand one ED module, i.e. COM3 port position, XL-NES-ED is configured at serial port 3 position, so in "comport No", we choose 3. We want to do X-NET communication, so in the "ChooseNet", select X-NET. At "ChoosePHY", select RS485.

ComportConfig				
ComportNo 3 ChooseNet X_Net Modbus Free PC	X_NET NetID 1 StationID 1 ↓ NetType TBN ✓ BaudRate 1500000 ✓			
ChoosePHY RS485 V ReadConfig WriteConfig Note:Configration will take effect after the power is re-up	TokenCycleTime 10			

NetID: refers to the communication network number composed of the two PLCs that need communication. The network number of the equipment in the same network must be consistent. We define this communication network as No. 1.

StationID: refers to the station number assigned to each PLC in the same network. We define PLC A as station 1 and PLC B as station 2.

There are three options for "Net type". If PLC communicates with PLC, select TBN; In case of communication between the HMI and PLC, either OMMS or TBN can be selected. If PLC communicates with servo, select OMMS. Here we are communicating with PLC, so we choose TBN. The network type of equipment in the same network must be the same. Baud rate: we choose 1.5M.

Token cycle time: it refers to the time that each site in a network circulates once. The unit

is ms. When the amount of communication data is large, it is necessary to set a large token cycle time to ensure the integrity of communication data. When we change the baud rate, the configuration tool will automatically generate the corresponding default time, which is generally used.

Max station number: it refers to the maximum number of devices in a network. Since X-NET communication cannot exceed 32 nodes, we set it to 32 here.

- (5) click write config, it will show write in succeeded information.
- (6) click ok, then cut the PLC power and power on again to make the parameters effective.
- (7) Click Route in the PLC config window.

👷 PLCConfig		
CommPort	Route	Ethernet

mini ore Route Ethernet	
	X_NET
	Net 1
Net type	Station 1 🖨
O X Net	Net TBN 🗸
○ Modbus	Baud rate 1000000 🗸
	Send delay 0 🖨
	TBN
Physical Type RS485 🗸 🗸	TokenCycleTime 50 숮
	MaxStationNum 32 🚔
Restart PLC to enable!	
	Kead Write

(8) It will show route config window.



(9) Click add, it will show below window.

📑 PLCConfig			×
CommPort Route E	thernet		
Route config			
⊕ RouteList	Net	COM_No	Gateway
	▶ 1	3	0
Add Del		Re	ad Write

The "Net" here refers to the "network number" previously configured in the "comport config" window, "Com_No" refers to the physical interface of PLC communication connection, that is, the serial port. We use terminal A and B on the expansion board XL-NES-ED, so the Com_No is 3, "Gateway" here defaults to 0, and other unused configuration items can be deleted.

(10) after configuration, click write, it will show write in successful information.

- (11) close the XINJEConfig tool, then cut the PLC power and power on again to make the setting effective.
- (12) The settings of PLC B is same to PLC A. (only the station ID is different). Please set as above steps.

Note: after changing the device, it needs to configure again.

The other details please refer to X-NET manual, modbus instructions please refer to

XD/XL programming manual

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