

XINJE XD5E-30T4-E PLC

Fast manual [No.: S121042 1.0]

Thank you for purchasing Xinje XD5E-30T4-E. This manual mainly introduces the specifications, electrical characteristics and usage methods of XD5E-30T4-E for your reference at any time. Before using the product, please read this manual carefully, and safer wiring operation under the premise of fully understanding the content of the manual. For the design method and instructions of XD5E-30T4-E program, refer to "XD/XL Series Programmable Controller Instruction User Manual" and "XD/XL Series Programmable Controller Positioning User Manual". For the introduction of XD5E-30T4-E hardware, refer to XD/XL Series Programmable Controller Hardware User Manual; for the communication function of Ethernet, refer to TCP/IP Communication User Manual based on Ethernet; for the function of X-NET Bus, refer to X-NET Bus User Manual.

- ➡ XD5E-30T4-E features:
- With Ethernet port, support 4-axis pulse output;

➤ Higher instruction processing speed (about 12-15 times of XC series);

➤ XD5E-30T4-E can connect up to 16 XD series I/O and analog right expansion modules.

➤ At most one BD board and one left extended ED module can be expanded.

➤ Compatible with most common functions of XC series.

Safety notes

Control system design notes



Dangerous!

- ◆ Make sure to design safe circuit for application, ensure the control system can work safe when the external power outages or PLC has fault.

◆ It is important to set emergency brake circuit, protection circuit, interlock circuit for forward reverse rotation, position upper and lower limit interlock switch to prevent from machinery damage.

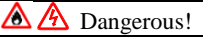
◆ For the safe operation of equipment, please design external protection circuit and safety mechanism for output signal related to major accident.

◆ All the output will be shut down when PLC found system error. The output maybe out of control when the controller circuit has error, please design suitable external control circuit to ensure the normal working of equipment.

◆ If the PLC output unit is broken, they cannot be controlled to be ON or OFF.

◆ PLC is designed for indoor electric environment, the power supply system should have lightning protection device, ensure that lightning overvoltage is not applied to the power input or signal input, output terminal of PLC, avoid equipment damage.

Installation and wiring notes



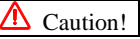
Dangerous!

- ◆ Do not use the PLC in the following places: dust, lampblack, conductive dust, corrosive gas, flammable gas. Exposure to the environment of high temperature, dew, wind and rain. Electric shock, fire, vibration, malfunction, misoperation also can cause product damage.

◆ Do not make scrap metal and wire drop into the controller vent when wiring, it may cause fire, fault, wrong operation.

◆ After installing the PLC, make sure there is no foreign object covering the ventilation, otherwise the heat dissipation will be bad and cause fire, fault and wrong operation.

◆ The wiring of installation box must be solid and reliable, poor contact may result in wrong action.



Caution!

- ◆ Please use external power supply for extension module DC24V power.

◆ For serious interference occasions, please use shield cable for high frequency signal input and output to improve system anti-jamming capability.

Run and maintenance notes



Dangerous!

- ◆ Please connect and dismantle communication cable, extension card and control unit cable after the power supply is shut down, otherwise it may cause equipment damage or incorrect operation.

◆ It needs to understand the manual well and fully confirm the safety before operation for on-line modification, forced output, RUN, STOP and so on.

◆ Please process the old product as industrial waste.

- ◆ Ensure to cut off the power supply when installing and uninstalling the extension card.

◆ It needs to replace the battery when power is on (ensure the memory data is not lost), when the equipment is running, it must be operated by a professional electrical technician wearing an insulating glove.

Production information

Naming rule

XD 5 E - 30 T 4 - E						
①	②	③	④	⑤	⑥	⑦
①	series	XD: XD series PLC				
②	type	5: enhanced				
③	Ethernet	E: Ethernet communication				
④	I/O	30: 16 input/14 output				
⑤	Output type	T: transistor output				
⑥	Pulse channel	4: 4 channels of pulse output				
⑦	Power supply	E: AC220V				

Basic parameters

Table 1: XD5E-30T4-E general specifications

Item	Specification
Insulation voltage	Up DC500V 2MΩ
Anti-jamming	Noise voltage 1000Vp-p 1us pulse 1 minute
Air	No corrosive, flammable gas
Environment	0°C~60°C
Environment	5%RH~95%RH(no condensation)
Com 1	USB port, fast download/upload program/online monitoring
Com 2	RS232(COM1), connect PC, HMI to programming or debug
Com 3	RS485(COM2), connect meter, VFD, etc.
Com 4	RJ45, support Ethernet communication, make the PLC access to LAN or WAN
Installation	Install on the rail directly with screw M3
Ground	The third ground(cannot ground together with high voltage

Table 2: XD5E-30T4-E performance specifications

Item		Specification	
Program execution mode		Cyclic scanning mode	
Programming mode		Instruction, ladder chart	
Processing speed		0.05us	
Memory		FlashROM and lithium battery (3V button battery)	
User program capacity ^{*1}		1MB	
I/O numbers ^{*2}	Total	30 points	
	Input	16 points X0~X17	
	Output	14 points Y0~Y15	
Internal coil (X) ^{*3}		1280 points, X0~X77、X10000~X11777、X20000~X20177、X30000~X30077	
		1280 points, Y0~Y77、Y10000~Y11777、Y20000~Y20177、Y30000~Y30077	
Internal coil (Y) ^{*4}		87000 points	M0~M69999 【HM0~HM11999】 ^{*5}
		Special use ^{*6} SM0~SM4999	
Internal coil(M, HM)		9000 points	S0~S7999 【HS0~HS999】 ^{*5}
Timer (T)	Numbers	7000 points	T0~T4999 【HT0~HT1999】 ^{*5}
	Specification	100ms timer: 0.1~3276.7s	
		10ms timer: 0.01~327.67s	
Counter (C)	Numbers	7000 points	C0~C4999 【HC0~HC1999】 ^{*5}
	Specification	16-bit counter: K0~32,767	
		32-bit counter: -2147483648~+2147483647	
Data register (D)		100000 words	D0~D69999 【HD0~HD24999】 ^{*5}
		Special use ^{*6} SD0~SD4999	
FlashROM register (FD)		14192	FD0~FD8191

	words	Special use ^{*6} SFD0~SFD5999
High speed processing ability	High speed counter, pulse output, external interruption	
Password protection	6-bit ASCII	
Self diagnostic function	Power on self-inspection, monitoring timer, syntax checking	

- 1: User program capacity refers to the maximum capacity in the confidential download mode.
- 2: refers to the input and output points that can actually be connected to peripherals.
- 3.4: Extension module (XD5E can extend up to 16 at the same time) and I/O address allocation (octal) of extended BD (up to 1 at the same time).
- 5: The memory area is the default power failure holding area (Note: XD5E series PLC power failure holding area can not be modified).
- 6: Special use (non-power-down maintenance) refers to registers for special use occupied by the system, which can not be used for other purposes. For details, refer to the relevant contents of the chapter "List of Special Soft Components" in the appendix of the Instruction Manual.

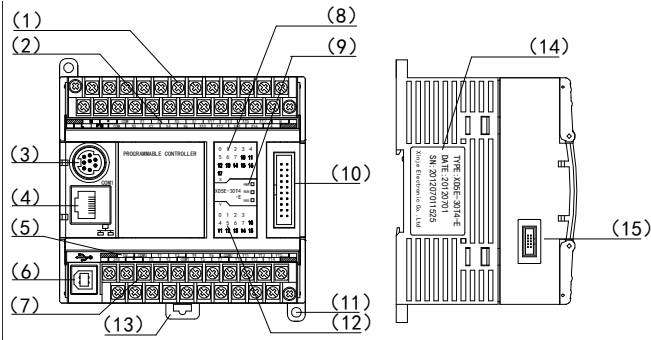
Table 3: Product model list

Type				Input (I)	Output (O)
AC power supply					
	Relay output	Transistor output	Mixed output		
NPN	-	XD5E-30T4-E	-	16	14

Electrical design reference

The configuration of the input and output terminal of XD5E-30T4-E is listed here.

Product structure



Part name:

- (1): input terminal, power supply terminal, com2
- (2): input label
- (3): COM1
- (4): Ethernet port
- (5): output label
- (6): USB port
- (7): output terminal, 24V output terminal
- (8): output indicator light
- (9): system light
- PWR: power supply light
- RUN: running light
- ERR: error light
- (10): extention module access
- (11): installation hole (2)
- (12): output indicator light
- (13): rail mounting hook
- (14) product label
- (15) ED module access

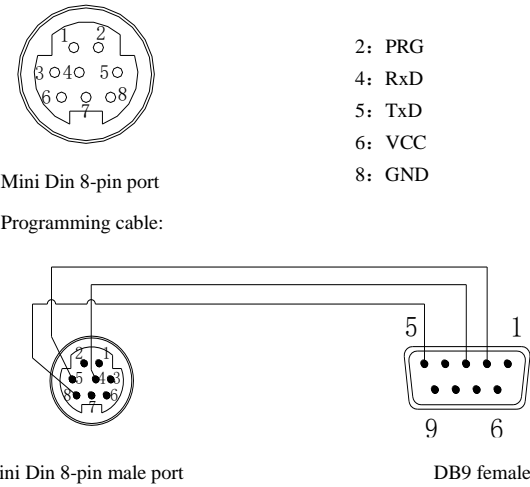
Communication port definition

- ◆ XD5E-30T4-E is equipped with four communication ports, one RS232 serial port (COM1), one RS485 port (COM2), one Ethernet port and one USB port; one RS232 or RS485 port (COM3) can be extended through the ED module (XD-NES-ED); and one RS232 or RS485 port can be extended through the BD board (XD-NS-BD or XD-NE-BD).

◆ USB communication port uses general USB download cable to connect PC programming software and PLC. Before the first time use, it needs to install the USB driver.

◆ RS232 Serial Port (COM1) can be used to connect PC programming software with PLC, HMI, communication with some instruments, etc. Support MODBUS and free format communication.

The communication port COM1 pin diagram is as follows:



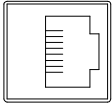
Mini Din 8-pin male port

DB9 female port

Note: the above diagram is for DVP cable, if it is XVP cable, please connect pin 1 of Mini Din8 and pin 7 of DB9.

- ◆ RS485 serial port (COM2, A is RS485+, B is RS485-) can be used to connect HMI, communicate with some instruments, etc. It can also be used to connect PC programming software and PLC. Support MODBUS, X-NET Fieldbus communication, free format communication.

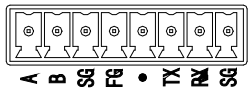
◆ Ethernet Port (RJ45) supports program download, online monitoring, remote monitoring and communication with other devices in LAN.



Note: When using, please pay attention to the matching of firmware version and programming software version of PLC, as shown in the table below.

Hardware version (check the product label)	Xinje PLC programming software (check the help menu)
V3.5.2b and down	V3.5.2(20180606)
V3.5.3 and up	V3.5.3 and up

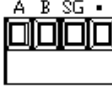
- ◆ Extended Communication Port (COM3) can be used to communicate with some instruments. The XD-NES-ED interface of ED module is as follows:



- ◆ Extended Communications Port (COM4) can be used to communicate with some instruments. The models and functions are shown in the following table:

Name	function
XD-NE-BD	RS485/fieldbus control/motion control fieldbus communication BD card
XD-NS-BD	RS232 communication BD card
XD-NO-ED	RS485/fieldbus control optical fiber communication BD card

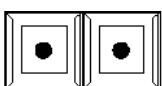
The interface is shown as below:



XD-NE-BD



XD-NS-BD



XD-NO-BD

Power supply specification


- ◆ The specifications of XD5E-30T4-E (AC power supply with "-E" in the model) are shown in the following table:

AC power supply

Item	Contents
Rated voltage	AC100V~240V
Voltage allowable range	AC100V~240V
Rated frequency	50/60Hz

Allowable instant power outage time	Interruption time ≤0.5 AC period, space ≥1 second
Impact current	Max below 40A 5ms/AC100V max below 60A 5ms/AC200V
Max consumption power	12W
Power supply for sensor	24VDC±10% 16 points max 200mA, 32 points max 400mA

- 1: The power cable should be more than 2 mm² in order to prevent voltage drop.
- 2: The programmable controller can continue to work even if there is a power failure within 10 ms. When the power is cut off for a long time or the abnormal voltage drops, the programmable controller stops working and the output is also in the OFF state. When the power supply is restored, the programmable controller starts to run automatically.
- 3: The ground terminals of the basic unit and the expansion module are interconnected and reliable grounding.

- ◆ The main body of PLC provides DC24V power output (24V, 0V terminals), which can be used as power supply for sensors, and the DC24V of 30-point PLC is 400 mA/DC24V. Please note that this terminal cannot be powered by an external power supply!
- ◆  are empty terminals. Please do not connect them externally or use them as relay terminals.
- ◆ The COM terminals of the basic unit and the extension unit should be connected to each other.

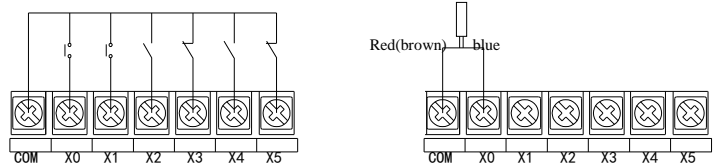
Input specification and wiring

The input specification is NPN mode. The internal structure and connection mode of this mode are described below.

● NPN mode specification

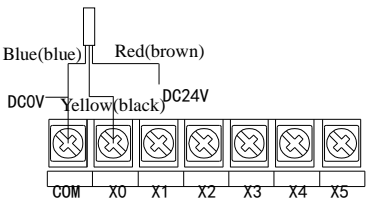
Item	Contents
Input signal voltage	DC24V ±10%
Input signal current	7mA/DC24V
Input ON current	Above 4.5mA
Input OFF current	Below 1.5mA
Input response time	About 10ms
Input signal mode	Contact input or NPN open collector transistor
Circuit insulation	Photocoupling insulation
Input action display	LED lights when the input is ON

● NPN wiring example



Switch button wiring

2-wire(NO or NC) proximity switch wiring



3-wire (NPN) proximity switch wiring

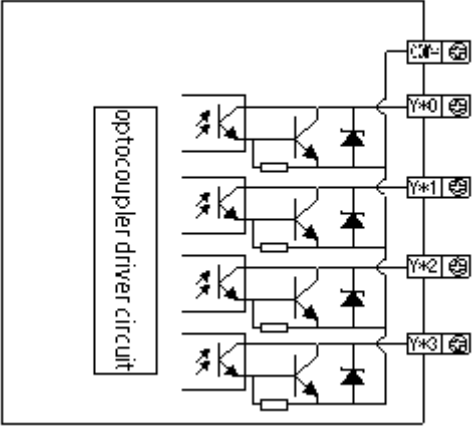
Output specification and wiring

The output specification is transistor mode. The internal structure and wiring mode of this mode are described below.

◆ Output specification

External power		Below DC5~30V
Circuit insulation		Light coupling insulation
Action indicator		LED
Max load	Resistant load	0.3A
	Inductive load	8W/DC24V
	Lamp load	1.5W/DC24V
Mini load		DC5V 2mA
Response time	OFF→ON	Below 0.2ms
	ON→OFF	Below 0.2ms

Transistor output:



High speed pulse output

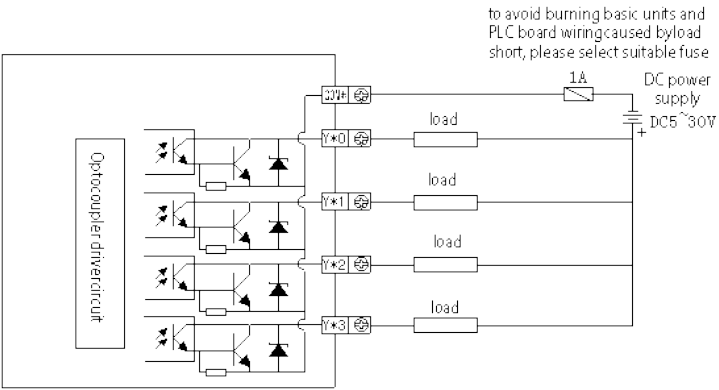
Model	T4
High speed pulse output terminal	Y0~Y3
External power supply	Below DC5~30V
Action indicator	LED light
Max current	50mA
Pulse max output frequency	100KHz

Note: When using the high-speed pulse output function, if the pulse frequency is between 100KHz and 200KHz, the normal operation of the servo will not be guaranteed. Please connect about 500 ohms of resistance between the output and 24V power supply.

◆ Transistor output processing

- The transistor output of the basic unit has 1 to 4 common terminals.
- For load driving power supply, use DC5-30V.
- The internal circuit of the programmable controller and the output transistor are insulated by a photoelectric coupler, and the common terminals are also separated from each other.
- When driving the light coupling, the LED light is on and the output transistor is ON.
- The programmable controller takes less than 0.2ms from drive (or cut off) the photocoupler to the transistor ON (or OFF).
- The current of each output point is 0.3A, but due to the limitation of temperature rise, the total current of 4 output points is 0.5A.
- The open circuit current is less than 0.1mA.

Transistor output wiring:

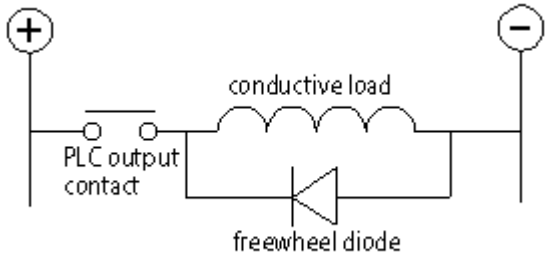


◆ Output circuit protection

For the inductive load of AC circuit, please use RC instantaneous voltage absorption circuit.

For the inductive load of DC circuit, please use freewheeling diode

● DC load



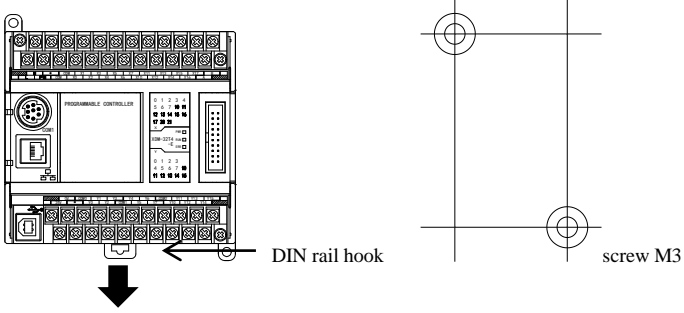
Note: freewheeling diode IN4007.

Product dimensions and installation

■ Installation

The rail can be used to install the basic unit and extension module.

Please use the rail DIN46277.



■ Dimension (unit: mm)

