XINJE

Extension ED module

XD-4PT-ED

Fast manual

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

➡ **Features of analog extension module**

XD-4PT-ED

➢ 4 channels analog input: current input mode, 0~20mA or 4~20mA.
➢ 10-bit high precision analog output.
➢ As the special function ED module of XD, XD series PLC can connect 1 XD-4PT-ED module.

Safety precautions

■ Control system design attentions

⚠⚠ **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

⚠⚠ **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 or AC220V power.

◆ Please use shield cable for high frequency I/O wiring to avoid interference.

■ Run and maintenance

⚠⚠ **Dangerous!**
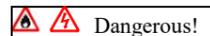
◆ Please connect all the cable include PLC, extension module and BD board after shutting down the power supply.

◆ 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

XD– 4 PT - ED
   ① ②③   ④

① Product series   XD: XD series extension module
② Analog input channel: 4: 4 channels
③ Analog input   PT: PT100 input
④ Module type   ED: left extension ED module

■ Basic parameters

XD series PLC can connect 1 extension ED module, the type is not limited.

Table 1: analog extension module XD-4PT-ED general specifications

Item	Specifications
Using environment	No corrosive gas
Environment temperature	0℃~60℃
Storage temperature	-20~70℃
Environment humidity	5~95%RH
Storage humidity	5~95%RH
Installation	Fix with M3 screw or install on the rail DIN46277(width 35mm)

Table 2: analog extension module XD-4PT-ED I/O precision

Item	PT100 input
Temperature range	-100~500℃
Analog output range	—
Digital input range	—
Digital output range	-1000~5000
resolution	0.1℃
integrated precision	±0.8%/1 scale
Transformation speed	20ms/1 channel
Power supply for analog	DC24V±10%, 150mA

Table 3: analog extension module XD-4PT-ED Analog transformation diagram

The relationship between analog input and transformed digital value
PT100 input
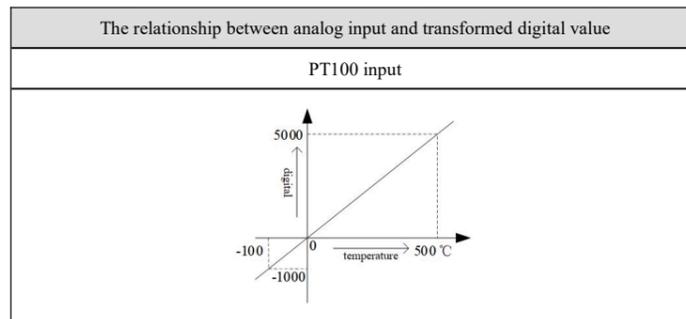
Product appearance

Here listed I/O terminal configurations of XD series extension module XD-4PT-ED.

■ Product structure

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indicator light
wiring terminal
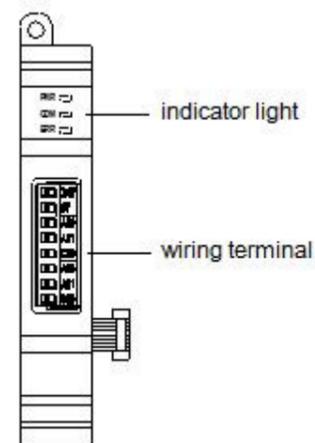
Each part name:

Name		Function
Indicator light	PWR	The LED lights when the ED module has power supply
	COM	The LED lights when the ED module communication port works well
	ERR	The LED lights when the ED module has error
Wiring terminal	24V	ED module external power supply 24V +
	0V	ED module external power supply 24V -
	A0	Channel 1 PT100 input
	A1	Channel 2 PT100 input
	C0	A0, A1 ground
	A2	Channel 3 PT100 input
	A3	Channel 4 PT100 input
	C1	AI2, A3 ground

Product dimension and installation

■ Installation

Do not install the module in below environment:

• Direct sunlight
• Environment temperature out of range 0-50℃
• 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

XD series extension ED module can be installed in com3 port of XD series PLC.

Note: please cut off the power before operation!

COM3
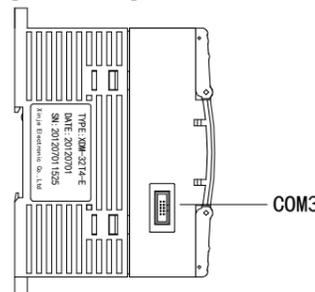
■ Product dimension   (Unit: mm)

XD series extension ED module dimension is shown as below:
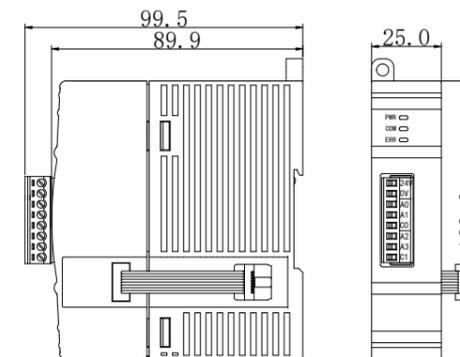
Electric design reference

■ I/O address

XD series extension ED module will not occupy I/O unit, the transformed value is stored in PLC register. The following is the PLC register corresponding to each channel.

Channel	PT signal
0CH	ID30000
1CH	ID30001
2CH	ID30002
3CH	ID30003

■ Working mode setting
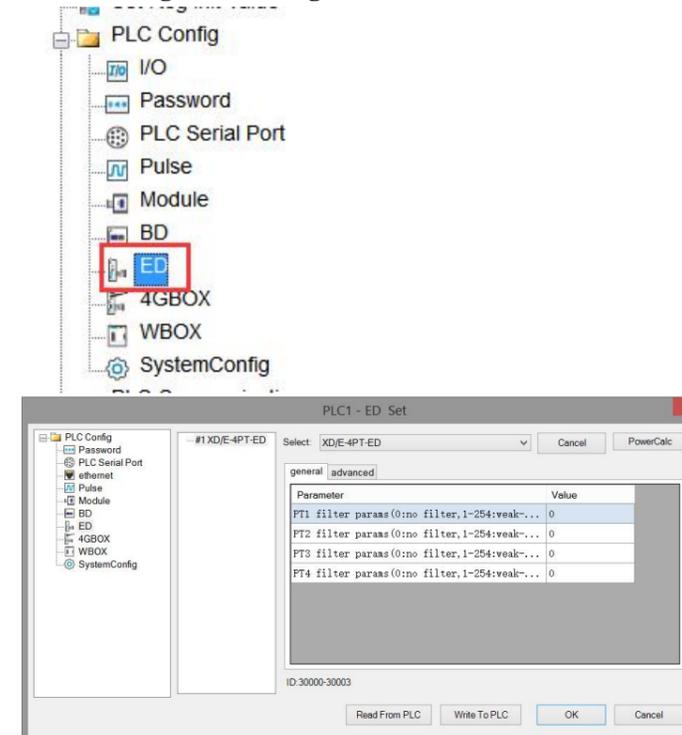
Steps:

1. open the XDPpro software, find the left project bar, click PLC config/ED.

2. choose the correct module type.

3. set the module parameters such as current input range.

4. click write to PLC, then re-power on the PLC to make the setting effective.

Note: first-order low-pass filtering weighted this sampled value with last filter output value, and got the effective filtering value. The filter coefficient is set by user, the range is 0-254, 0 means no filter.

■ External connection

Please pay attention to below items when wiring:

① please use shield cable to avoid interference, and single point connect to ground for the shield layer.

② when XD-4PT-ED connects external + 24V power supply, please choose the power

supply from PLC to avoid interference.

◆ **PT100 temperature input**
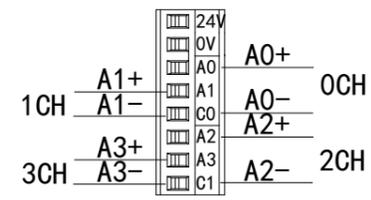
Note: For a three-wire platinum thermal resistor, connect two leads of the same color to C0 and one lead to A0 or A1.

Programming example

Example: Read four temperature signals.
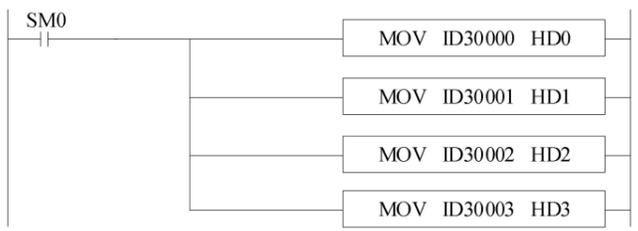
Explanation:

SM0 is normally ON coil, it will be ON when PLC is running.

PLC will read the digital quantity of PT 1~4 channel (actual temperature*10) into register HD0~HD3 in real time.