

XINJE

Extension ED module

XL-2PT2DA-A-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.



Features of analog extension module

XL-2PT2DA-A-ED

- 2 channels analog output: current output mode, 0~20mA or 4~20mA.
- 2 channels PT100 temperature input: temperature range -100~500℃, precision 0.1℃.
- 10-bit high precision analog output.
- As the special function ED module of XL, XL series PLC can connect 1 XL-2PT2DA-A-ED module.

Safety precautions

Control system design attentions

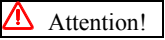


- ◆ Make sure design the safety circuit, to ensure that the control system can still work safety when the external power supply cut off or PLC broken.
- ◆ Make sure set emergency braking circuit, protection circuit, interlock circuit of forward-reverse running in PLC external circuit and upper-lower 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

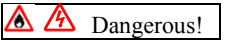


- ◆ Do not use the PLC in the following environment: dust, soot, corrosive gases, flammable gas, high temperature, condensation, vibration, impact, lightning, fire.
- ◆ Do not let the metal scrap and wire head drop into the ventilation hole of PLC, otherwise it will cause fire or error operation.
- ◆ 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.



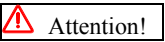
- ◆ It can use external power supply for extension module DC24V power.
- ◆ Please use shield cable for high frequency I/O wiring to avoid interference.

Run and maintenance



- ◆ 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.



- ◆ 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

XL- 2 PT 2 DA - A - ED

① ② ③ ④ ⑤ ⑥ ⑦

- ① Product series XL: XL series extension module
- ② Analog input channel: 2: 2 channels temperature input
- ③ Analog input PT: PT100 temperature input
- ④ Analog output channel: 2: 2 channels analog output
- ⑤ Analog output DA: analog output
- ⑥ I/O type A: current type for input and output
- ⑦ Module type ED: left extension ED module

Basic parameters

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

Table 1: analog extension module XL-2PT2DA-A-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	Install on the rail DIN46277(width 35mm)

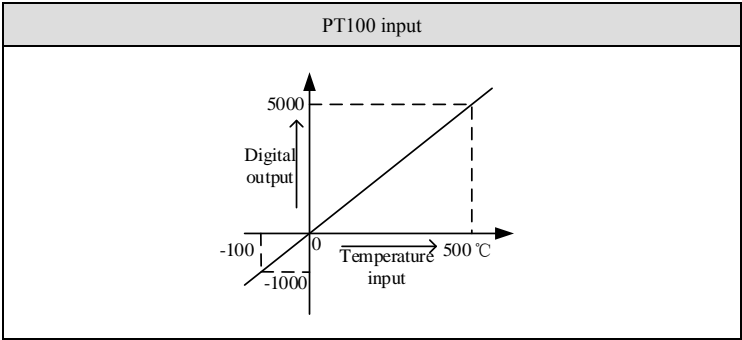
Table 2: analog extension module XL-2PT2DA-A-ED I/O precision

Item	Temperature input (PT)	Analog current output (mA)
Temperature input range	-100~500℃	—
Analog output range	—	0~20, 4~20mA External load resistor is less than 500Ω
Digital input range	—	10-bit binary number (0~1023)
Digital output range	-1000~5000	
Resolution	0.1℃	1/1023 (10-bit)
integrated precision	±0.8% of the full scale	1%
Transformation speed	10ms	10ms
Power supply for analog	DC24V±10%, 150mA	

Table 3: analog extension module XL-2PT2DA-A-ED AD transformation diagram

The relationship between analog output and digital input	
0~20mA analog output	4~20mA analog output

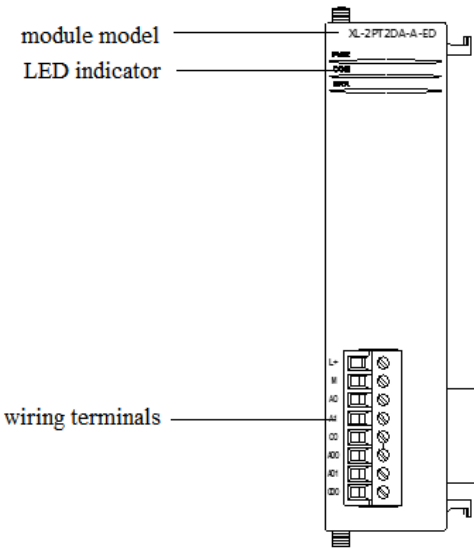
Note: when the input data is over K1023, DA transformed analog output will keep 20mA.



Product appearance

Here listed I/O terminal configurations of XL series extension module XL-2PT2DA-A-ED.

Product structure



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	L+	ED module external power supply 24V +
	M	ED module external power supply 24V -
	A0	Channel 1 PT100 input
	A1	Channel 2 PT100 input
	C0	PT1, PT2 ground
	AO0	Channel 1 analog output
	AO1	Channel 2 analog output
	CO0	AO0, AO1 ground

Product dimension and installation

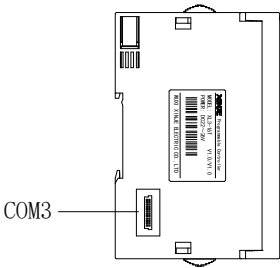
Installation

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

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

Note: please cut off the power before operation!



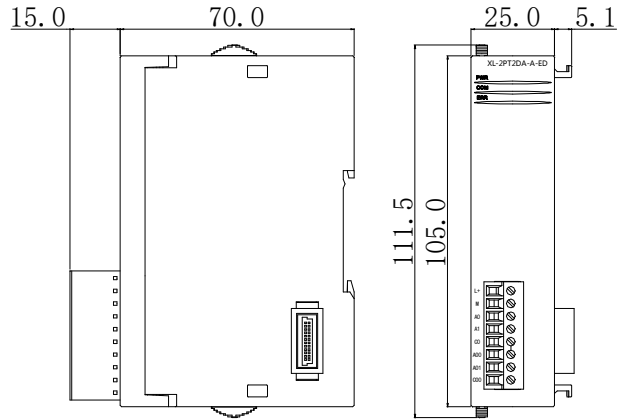
Terminal specification:

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

- (1) Stripping length: 9mm.
- (2) 0.25-1.5mm² flexible conductor with tubular bare ends.
- (3) 0.25-0.5mm² of flexible conductors with tubular pre-insulated ends.

Product dimension (Unit: mm)

XL series extension ED module dimension is shown as below:



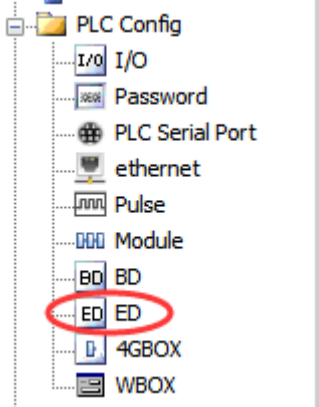
Electric design reference

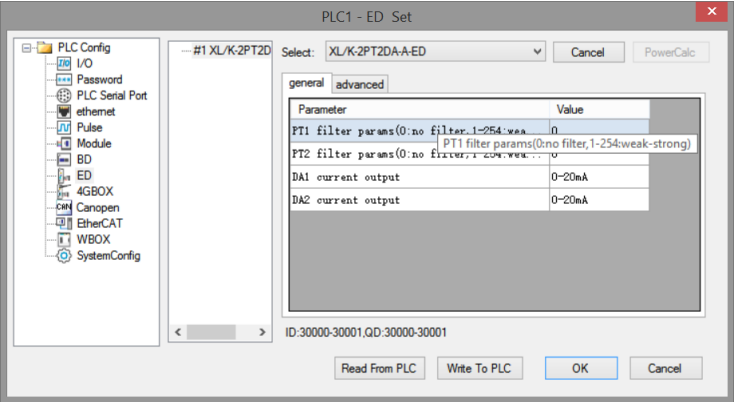
I/O address

XL 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
Channel	DA signal
0CH	QD30000
1CH	QD30001

Working mode setting





Steps:

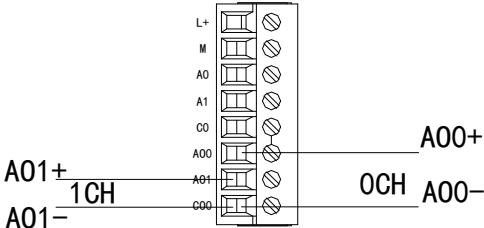
1. open the XDPpro software, find the left project bar, click PLC config/ED.
2. choose the correct module type.
3. set the module parameters such as current output range.
4. click write to PLC, then re-power on the PLC to make the setting effective.

Note: The first-order low-pass filtering method uses the sampling value of this time and the output value of the last filtering to obtain the effective filtering value. The filtering coefficient is set by the user to 0~254. The larger the value, the more stable the data will be, but the data may lag. Therefore, when the value is set to 1, the filtering effect is the weakest, and when the value is set to 254, the filtering effect is the strongest. The default value is 0, which means no filtering.

### External connection

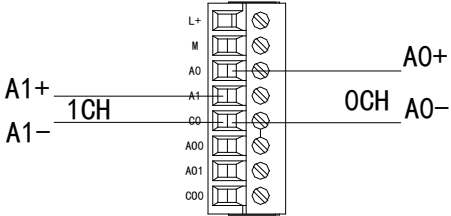
Please use shield cable to avoid interference, and single point connect to ground for the shield layer.

#### Current single-ended output



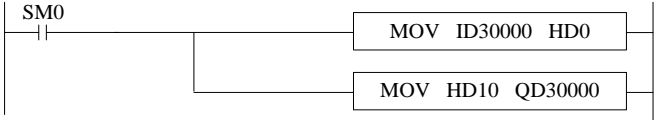
Note: current output does not need to be connected to DC24V power supply in series!

#### PT100 temperature input



### Programming example

**Example:** read one channel of temperature signal, and output one channel of 0~20mA current signal.



#### Explanation:

SM2 is power on initial coil, and set ON the PT and DA channel enable bit.

SM0 is always ON coil when the PLC is running.

When the PLC starts to work, it will read PT channel 1 digital value (actual temperature×10)

to HD0 register, and send the HD10 value to QD30000, and output related current signal.