

Steps:

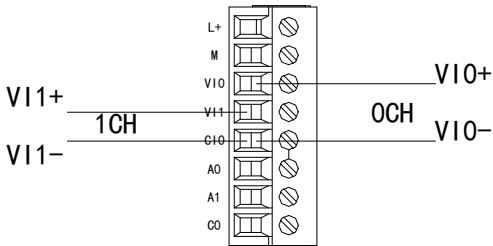
1. open the XDPpro software, find the left project bar, click PLC config/ED.
2. choose the correct module type.
3. set the module parameters such as voltage input range.
4. click write to PLC, then re-power on the PLC to make the setting effective.

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.

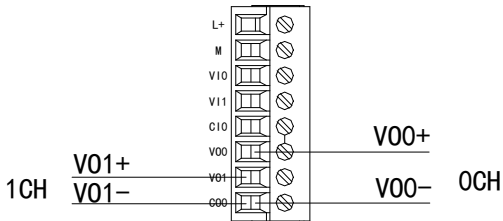
External connection

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

Voltage single-ended input



Voltage single-ended output



Programming example

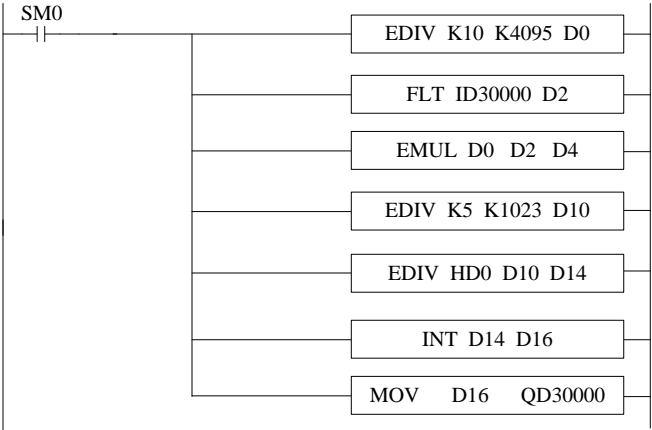
Example:

The output signal of the existing pressure sensor needs to be collected (the performance parameters of the pressure sensor: the detection pressure range is 0Mp ~ 10Mp, the output analog signal is 0 ~ 10V), and at the same time, it needs to output a channel of 0 ~ 5V voltage signal to the frequency converter.

Analysis: since the pressure detection range of the pressure sensor is 0Mp ~ 10Mp, the corresponding output analog quantity is 0 ~ 10V, and the digital quantity range of the expansion module through analog-to-digital conversion is 0 ~ 4095; therefore, we can skip the analog quantity 0 ~ 10V in the intermediate conversion link, which is directly the pressure detection range of 0Mp ~ 10MP corresponding to the digital range of 0 ~ 4095; $10\text{Mp} / 4095 = 0.002442$, therefore, the real-time pressure of the current pressure sensor can be calculated by multiplying the real-time value collected in the ID register of the expansion module by 0.002442. For example, if the number collected in the ID register is 1024, the corresponding pressure is 2.5Mp.

In the same way, the set digital value range of 0 ~ 1023 in the expansion module register QD corresponds to the voltage output signal of 0 ~ 5V, $5\text{V} / 1023 = 0.00488758$, which indicates how much voltage value is output for each set digital quantity in the expansion module register QD; for example, it needs to output 2.5V voltage value, $2.5 / 0.00488758 = 511.5$, and send the calculated digital value to the corresponding QD register.

Program:



Note: please use floating-point operation for calculation, otherwise the calculation accuracy will be affected or even unable to calculate!

Explanation:

SM0 is normally on coil and is always on during PLC operation.

PLC starts to run, analog acquisition first calculates the pressure value of each digit 1 collected by the expansion module, and then converts the digital quantity (integer) collected in ID30000 register into floating-point number. Therefore, the current pressure value can be calculated by multiplying the real-time value collected in the expansion module ID30000 register by the corresponding pressure value of each digit 1 collected by the expansion module.

Similarly, the analog output first calculates the voltage value of each digit 1 collected by the expansion module, then the digital quantity (floating-point number) to be set equals to the set target voltage value divided by the corresponding voltage value of each digit 1. Since the QD30000 register can only store integers, it is necessary to convert the floating-point digital quantity to an integer and send to QD30000.