WECON AE30-4AD Analog Input Expansion Module User Manual

1 Introduction

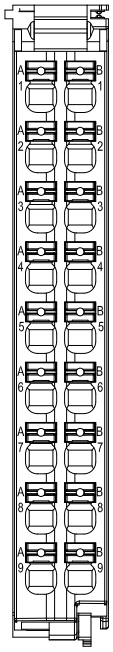
The AE30-4AD (4-channel analog input) is designed for acquiring analog signals such as voltage and current. It is compatible with our company's A500 series PLCs and modular devices.

Supported host software version: **2.8.21 or higher.**

Supported PLC firmware version: **2.322.101 or higher.**

Note: The total power consumption of the A500 series PLC and all connected expansion modules must not exceed 48W.

2 Terminal Description

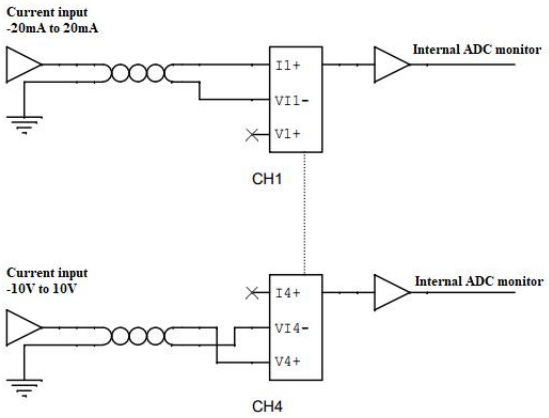


<AE30-4AD>

V1+	A1	B1	V2+
I1+	A2	B2	I2+
VI1-	A3	B3	VI2-
V3+	A4	B4	V4+
I3+	A5	B5	I4+
VI3-	A6	B6	VI4-
·	A7	B7	·
·	A8	B8	·
·	A9	B9	·

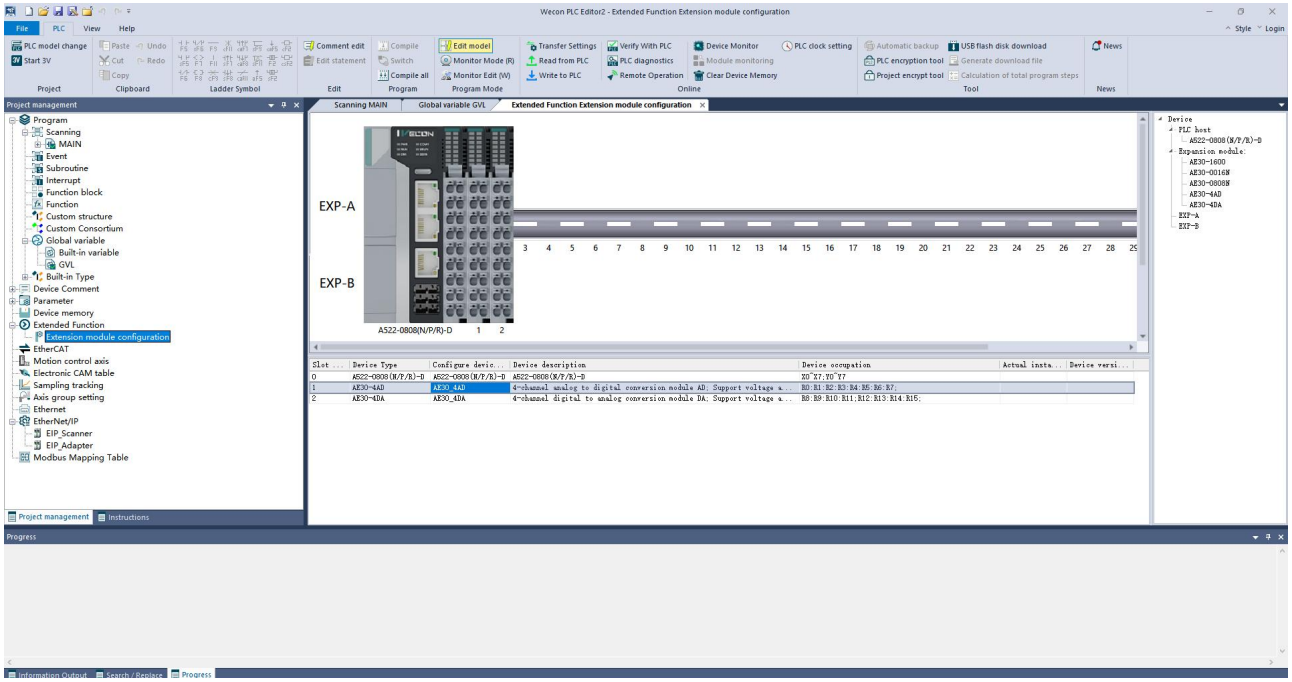
3 Parameter specifications

3.1 4AD input specifications

Project	Specification requirements
Input type	Analog input
Input circuit composition	
Input mode	Voltage/current
Input channel	4
Resolution	1/32000（16bit）
Voltage input range	-10V-10V
Voltage input impedance	220kΩ
Current input range	4mA-20mA, -20mA-20mA
Current input impedance	250Ω
Comprehensive precision	±1%
Conversion speed	2ms/4CH
Power supply	Interface power supply, DC 24V±10%, 30mA

4 User Guide

4.1 Usage with A500 Main Unit



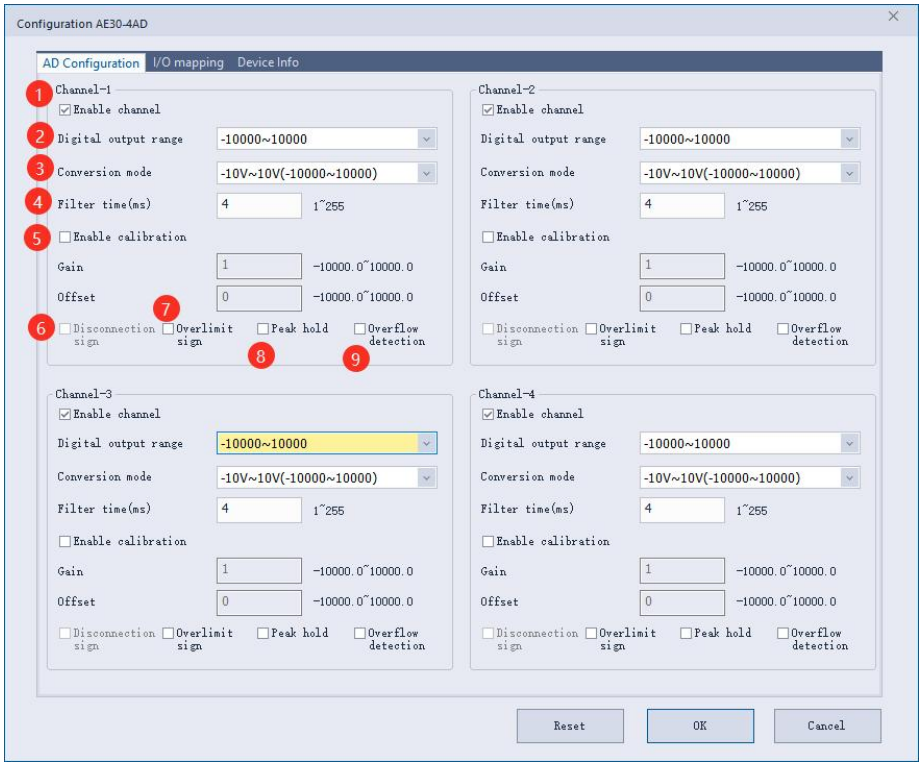
Host Computer Expansion Module Configuration Process Description:

① Double-click the expansion module configuration option to open the configuration interface.

② Add modules according to the model and position of the currently connected modules on the host unit.

③ Double-click the module in the current slot to open the parameter configuration interface.

AD Configuration



① **Enable Channel:** Configures whether the current expansion module channel is active.
②**Digital Output Range:** Default setting: -10000~10000, which proportionally scales the output function of the current conversion mode. Supported output ranges: -10000~10000, -20000~20000, -32000~32000, -27648~27648.
③**Conversion mode:** The default setting is ADV conversion mode, the measurement range is-10V-10V (-10000-10000);
④**Filtering time:** Support 1-255ms, used to reduce the fluctuation of channel output data, the default filtering time is 4ms. Please adjust the channel output data according to the requirements of the actual application scenario to select the appropriate filtering time;
⑤**Enable calibration:** When the actual analog input of the module channel deviates greatly from the measured channel value of the module, it can be used to improve the measurement precision and accuracy.
For modules with calibration enabled, the channel value is calculated as follows: Actual channel value = digital*gain+offset, e.g.:
When the channel input analog is 10000mV, the measured digital is 9950, and the actual channel value should be 10000;
When the channel input analog is -10000mV, the measured digital is-9950, and the actual channel value should be -10000;
Assume gain as a and offset as b

$$\begin{cases} 9950*a+b=10000 \\ -9950*a+b=-10000 \end{cases}$$; the result is $$\begin{cases} a=1.005025 \\ b=0.00125 \end{cases}$$.

The derivation formula is as follows:
Gain = (Actual input analog 1-actual input analog 2)/ (Expansion module measured digital 1-Expansion module measured digital 2)

Offset = actual channel value-digital*gain
With the above formula, the gain and offset values can be derived to calibrate the module to improve the accuracy and stability of the measurement. When performing calibration, it is necessary to select the appropriate
parameters and methods, ensuring accurate and reliable measurement results.
⑥ **Wire Break Flag:** When wire break detection is enabled, checks whether the input current or voltage is below the minimum value in current (4mA～20mA) or voltage (1V～5V) conversion modes.
⑦ **Over-Limit Flag:** When over-limit detection is enabled, checks whether the input voltage or current exceeds the rated maximum or falls below the rated minimum.
⑧ **Peak Hold:** When peak hold is enabled, captures the input voltage or current and maintains the maximum voltage or current value on the mapped channel.
⑨ **Overflow Detection:** When overflow detection is enabled, checks whether the input voltage or current exceeds the absolute maximum or falls below the absolute minimum limits.

I/O Mapping

By default, the channels of the current module are mapped to the R soft elements based on the number of channels. The following example shows the mapping of analog input physical values from channels CH1 to CH4 to R0–R3 soft elements, with status codes mapped to R4–R7.