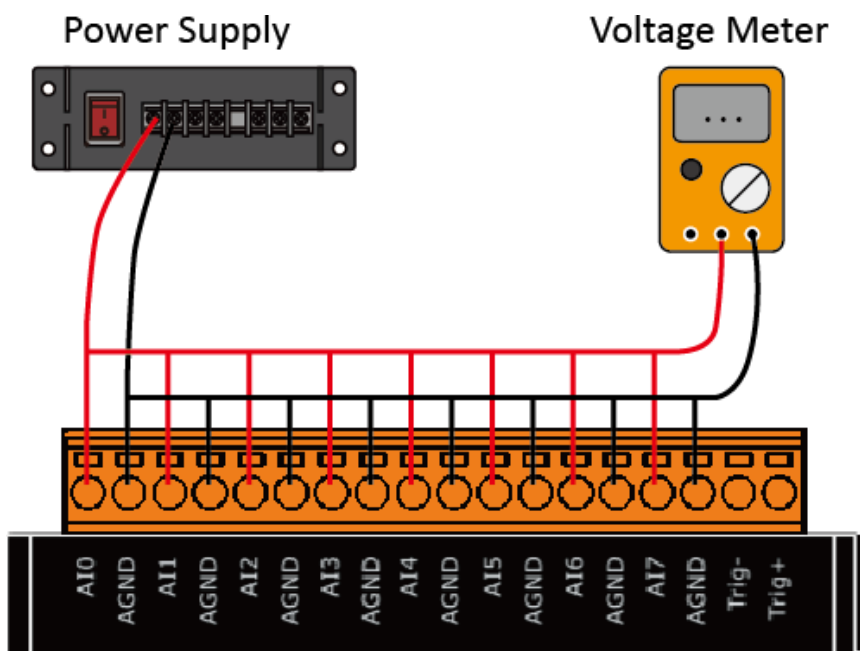


## 前置作業

在進行手動校正前需要準備輸出穩定的電源供應器與電表各一台。  
(愈精密的電表校正的效果愈好)

接著將 AI 與電表、電源供應器並連，如下圖：



步驟 1：輸入 IP 與 Port 後，點選 Connect。

The screenshot shows the Form1 software interface. The IP address is set to 10.1.1.123 and the Port is set to 9999. The Connect button is highlighted with a red box and a red arrow. The DisConnect button is also visible. The Gain dropdown menu is set to 1. The Meter 1 and Meter 2 fields are empty. The Point\_1 and Point\_2 buttons are visible. The ShowGainOffset button is also present. The Firmware field is empty. The Step 1 instruction is: "Step 1: Input IP, Port and click 'Connect' button". The exit and clear buttons are also visible.

連線成功後會讀回 Firmware 版本。

步驟 2：輸出電壓(5V~0V)到 ch0~ch7 與電表。

步驟 3：選擇要校正的 Gain Range、將電表的數值輸入於 Meter 1 並點選 Point 1。

The screenshot shows a software window titled 'Form1'. It has input fields for IP (10.1.1.123), Port (9999), and Firmware (02). There are 'Connect' and 'DisConnect' buttons. The 'Gain' dropdown is set to '+/- 5V'. 'Meter 1' is set to '4.7990' and 'Point\_1' is selected. 'Meter 2' is empty and 'Point\_2' is not selected. A 'ShowGainOffset' button is present. Below the input fields is a text area with instructions: 'Step 1: Input IP, Port and click 'Connect' button \*Connect server successful', 'Step 2: Output a voltage to ch0~ch7 and voltage meter', and 'Step 3: Select the gain, input the number of the meter and click Point 1'. At the bottom are 'exit' and five 'clear' buttons.

\*輸入越接近 Range 上限的電壓校正的效果越好.

按下 Point 1 後會顯示每個 Channel 讀到的 Raw Data.

The screenshot shows the same software window as before, but now the 'Point\_1' button is highlighted in blue. The text area displays the following raw data: 'ch 0 +/- 5V Raw Data 7996', 'ch 1 +/- 5V Raw Data 7991', 'ch 2 +/- 5V Raw Data 7995', 'ch 3 +/- 5V Raw Data 7997', 'ch 4 +/- 5V Raw Data 7992', 'ch 5 +/- 5V Raw Data 7997', 'ch 6 +/- 5V Raw Data 7996', and 'ch 7 +/- 5V Raw Data 7990'. The instructions in the text area are updated to include 'Step 4: Output a minus voltage to ch0~ch7 and voltage meter' and 'Step 5: Input the number of the meter and click Point 2'.

步驟 4：輸出電壓(-5V~0V)到 ch0~ch7 與電表。

步驟 5：於 Meter 2 輸入電表的值，然後點選 Point 2。

Form1

IP: 10.1.1.123  
Port: 9999  
Firmware: 02

Gain: +/- 5V

Meter 1: 4.7990 Point\_1  
Meter 2: -4.7916 Point\_2

ShowGainOffset

Step 1: Input IP ,Port and click 'Connect' button  
\*Connect server successful

Step 2: Output a voltage to ch0~ch7 and voltage meter

Step 3: Select the gain, input the number of the meter and click 'Point 1'

Step 4: Output a minus voltage to ch0~ch7 and voltage meter

Step 5: Input the number of the meter and click Point 2

ch 0 +/- 5V Raw Data 7996  
ch 1 +/- 5V Raw Data 7991  
ch 2 +/- 5V Raw Data 7995  
ch 3 +/- 5V Raw Data 7997  
ch 4 +/- 5V Raw Data 7992  
ch 5 +/- 5V Raw Data 7997  
ch 6 +/- 5V Raw Data 7996  
ch 7 +/- 5V Raw Data 7990

exit clear clear clear clear

\*輸入越接近 Range 下限的電壓校正的效果越好。

按下 Point 2 後會顯示每個 Channel 讀到的 Raw Data。

Form1

IP: 10.1.1.123  
Port: 9999  
Firmware: 02

Gain: +/- 5V

Meter 1: 4.7990 Point\_1  
Meter 2: -4.7916 Point\_2

ShowGainOffset

Step 1: Input IP ,Port and click 'Connect' button  
\*Connect server successful

Step 2: Output a voltage to ch0~ch7 and voltage meter

Step 3: Select the gain, input the number of the meter and click 'Point 1'

Step 4: Output a minus voltage to ch0~ch7 and voltage meter

Step 5: Input the number of the meter and click Point 2

+/- 5V Write Gain Offset Finished!!  
Choose another gain and repeat Step 2 ~ Step 5

ch 0 +/- 5V Raw Data 7996  
ch 1 +/- 5V Raw Data 7991  
ch 2 +/- 5V Raw Data 7995  
ch 3 +/- 5V Raw Data 7997  
ch 4 +/- 5V Raw Data 7992  
ch 5 +/- 5V Raw Data 7997  
ch 6 +/- 5V Raw Data 7996  
ch 7 +/- 5V Raw Data 7990

ch 0 +/- 5V Raw Data 86A1  
ch 1 +/- 5V Raw Data 86A2  
ch 2 +/- 5V Raw Data 86A2  
ch 3 +/- 5V Raw Data 869C  
ch 4 +/- 5V Raw Data 86A2  
ch 5 +/- 5V Raw Data 869C  
ch 6 +/- 5V Raw Data 86A2  
ch 7 +/- 5V Raw Data 869C

exit clear clear clear clear

接著請切換另一個 Gain Range 並重複步驟 2~步驟 5

Form1

IP: 10.1.1.123  
Port: 9999  
Firmware: 02

Gain: +/- 10V

Meter 1: 9.8020 Point\_1  
Meter 2: -9.7991 Point\_2

ShowGainOffset

Step 1: Input IP ,Port and click 'Connect' button  
\*Connect server successful

Step 2: Output a voltage to ch0~ch7 and voltage meter  
Step 3: Select the gain, input the number of the meter and click Point 1

Step 4: Output a minus voltage to ch0~ch7 and voltage meter  
Step 5: Input the number of the meter and click Point 2

+/- 5V Write Gain Offset Finished!!  
Choose another gain and repeat Step 2 ~ Step 5  
+/-10V Write Gain Offset Finished!!

Calibration Finished !!!!!  
Click 'ShowGainOffset' button to check Gain Offset

ch 0 +/- 5V Raw Data 7996	ch 0 +/- 5V Raw Data 86A1
ch 1 +/- 5V Raw Data 7991	ch 1 +/- 5V Raw Data 86A2
ch 2 +/- 5V Raw Data 7995	ch 2 +/- 5V Raw Data 86A2
ch 3 +/- 5V Raw Data 7997	ch 3 +/- 5V Raw Data 869C
ch 4 +/- 5V Raw Data 7992	ch 4 +/- 5V Raw Data 86A2
ch 5 +/- 5V Raw Data 7997	ch 5 +/- 5V Raw Data 869C
ch 6 +/- 5V Raw Data 7996	ch 6 +/- 5V Raw Data 86A2
ch 7 +/- 5V Raw Data 7990	ch 7 +/- 5V Raw Data 869C
ch 0 +/-10V Raw Data 7C2A	ch 0 +/-10V Raw Data 83DC
ch 1 +/-10V Raw Data 7C2A	ch 1 +/-10V Raw Data 83DD
ch 2 +/-10V Raw Data 7C2B	ch 2 +/-10V Raw Data 83DD
ch 3 +/-10V Raw Data 7C2B	ch 3 +/-10V Raw Data 83DE
ch 4 +/-10V Raw Data 7C2B	ch 4 +/-10V Raw Data 83DC
ch 5 +/-10V Raw Data 7C2C	ch 5 +/-10V Raw Data 83DC
ch 6 +/-10V Raw Data 7C29	ch 6 +/-10V Raw Data 83DF
ch 7 +/-10V Raw Data 7C2A	ch 7 +/-10V Raw Data 83DE

exit clear clear clear clear

當兩個 Gain Range 皆校正過後，待訊息出現 Calibration Finished !!!，即完成校正。

校正完成後，可以點選 ShowGainOffset 讀取 Gain Offset

Form1

IP: 10.1.1.123  
Port: 9999  
Firmware: 02

Gain: +/- 10V

Meter 1: 9.8020 Point\_1  
Meter 2: -9.7991 Point\_2

ShowGainOffset

Step 1: Input IP ,Port and click 'Connect' button  
\*Connect server successful

Step 2: Output a voltage to ch0~ch7 and voltage meter  
Step 3: Select the gain, input the number of the meter and click Point 1

Step 4: Output a minus voltage to ch0~ch7 and voltage meter  
Step 5: Input the number of the meter and click Point 2

+/- 5V Write Gain Offset Finished!!  
Choose another gain and repeat Step 2 ~ Step 5  
+/-10V Write Gain Offset Finished!!

Calibration Finished !!!!!  
Click 'ShowGainOffset' button to check Gain Offset

ch 0 +/- 5V Raw Data 7996	ch 0 +/- 5V Raw Data 86A1
ch 1 +/- 5V Raw Data 7991	ch 1 +/- 5V Raw Data 86A2
ch 2 +/- 5V Raw Data 7995	ch 2 +/- 5V Raw Data 86A2
ch 3 +/- 5V Raw Data 7997	ch 3 +/- 5V Raw Data 869C
ch 4 +/- 5V Raw Data 7992	ch 4 +/- 5V Raw Data 86A2
ch 5 +/- 5V Raw Data 7997	ch 5 +/- 5V Raw Data 869C
ch 6 +/- 5V Raw Data 7996	ch 6 +/- 5V Raw Data 86A2
ch 7 +/- 5V Raw Data 7990	ch 7 +/- 5V Raw Data 869C
ch 0 +/-10V Raw Data 7C2A	ch 0 +/-10V Raw Data 83DC
ch 1 +/-10V Raw Data 7C2A	ch 1 +/-10V Raw Data 83DD
ch 2 +/-10V Raw Data 7C2B	ch 2 +/-10V Raw Data 83DD
ch 3 +/-10V Raw Data 7C2B	ch 3 +/-10V Raw Data 83DE
ch 4 +/-10V Raw Data 7C2B	ch 4 +/-10V Raw Data 83DC
ch 5 +/-10V Raw Data 7C2C	ch 5 +/-10V Raw Data 83DC
ch 6 +/-10V Raw Data 7C29	ch 6 +/-10V Raw Data 83DF
ch 7 +/-10V Raw Data 7C2A	ch 7 +/-10V Raw Data 83DE

exit clear clear clear clear

+/- 5V  
ch0  
User Gain 33112 Offset -3  
Default Gain 33109 Offset -3  
ch1  
User Gain 33115 Offset -1  
Default Gain 33113 Offset -1  
ch2  
User Gain 33113 Offset -3  
Default Gain 33110 Offset -3  
ch3  
User Gain 33108 Offset -1  
Default Gain 33106 Offset -2  
ch4  
User Gain 33114 Offset -1  
Default Gain 33112 Offset -1  
ch5  
User Gain 33108 Offset -1  
Default Gain 33108 Offset 0  
ch6  
User Gain 33112 Offset -3  
Default Gain 33109 Offset -4  
ch7  
User Gain 33112 Offset 3  
Default Gain 33109 Offset 1

訊息中的 User Gain XXXX Offset XXXX 為校正後的數值，  
而 Default Gain XXXX Offset XXXX 為原廠校正的值。