AFT (Actuator Function Tester) Settings

2017-12-03

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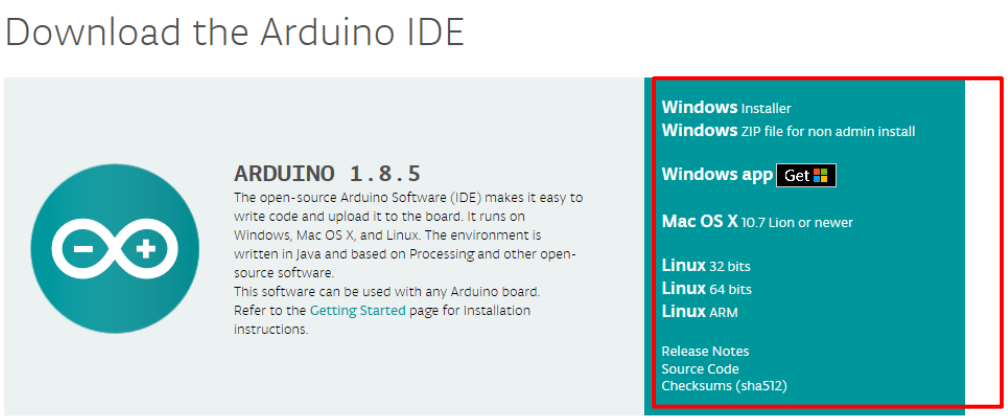
Arduino IDE Installation

➢ Arduino IDE Installation

- **When using Arduino Due, for communication port connection, Arduino IDE must be installed**
- Download Web : https://www.arduino.cc/en/Main/Software



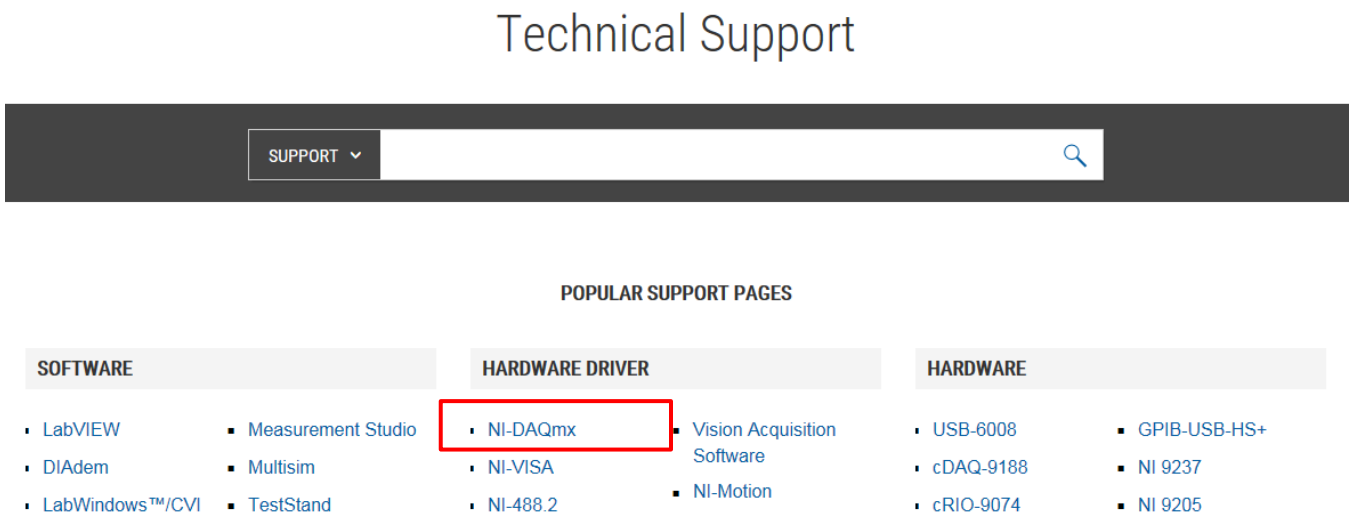
➢ Arduino IDE Installation

- Set basic settings for installation

NI Hardware Driver Installation

➢ NI Hardware Driver Installation

- **When using NI DAQ Board, Hardware Driver (NI-DAQmx) must be installed**
- Download Web : http://www.ni.com/en-us/support.html

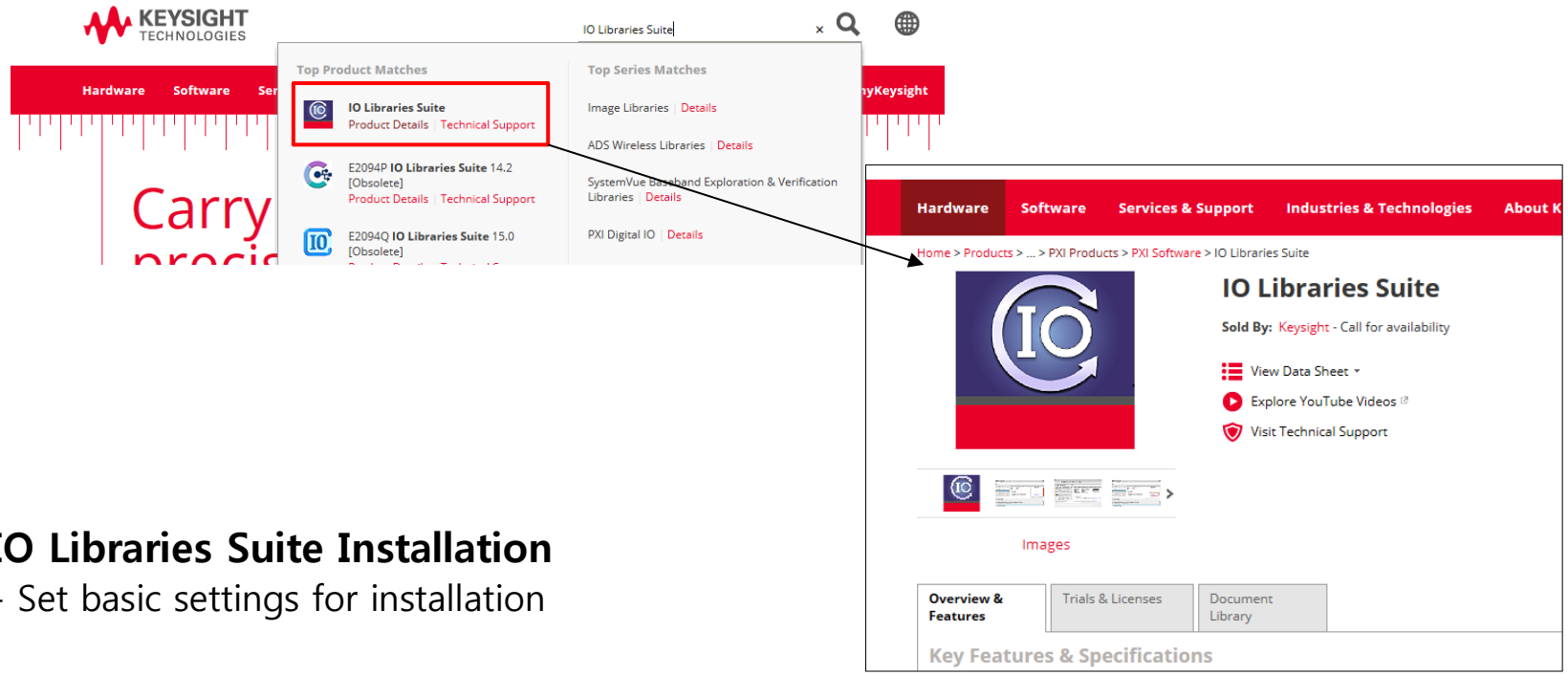


➢ NI-DAQmx Installation

- Set basic settings for installation

Power Supply Driver Installation

- **KeySight PS Driver Installation**
  - **When using KeySight Power Supply, for SCPI communication, Driver must be installed**
  - Search IO Libraries Suite and download from http://www.keysight.com Search window.



- **IO Libraries Suite Installation**
  - Set basic settings for installation

AFT Settings

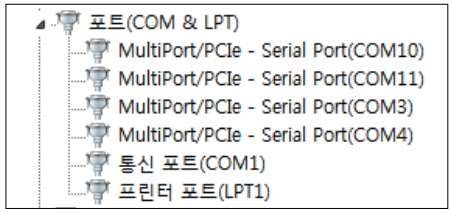
➢ Confirming Equipment Connection

- Confirm connection equipment serial No.

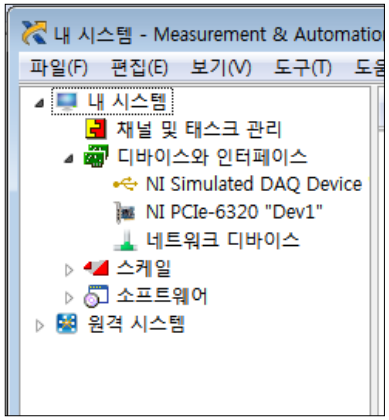
NI MAX

Keysight Connection Expert

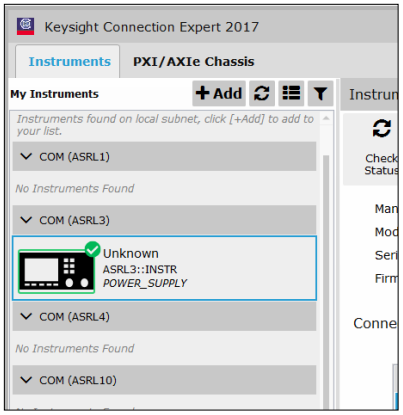
[Manager Com confirmation]



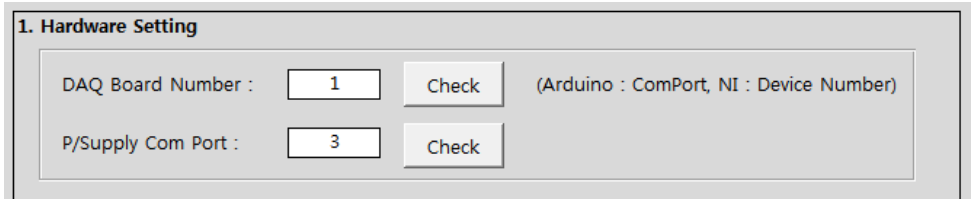
[NI Max Dev confirmation]

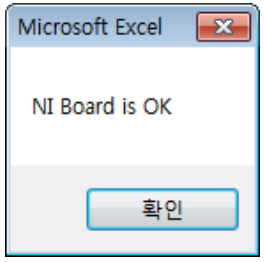


[Connection Expert Com confirmations]



- Open AFT Excel File.
- Move to Setup page and input relevant numbers in DAQ Board Number and PS Com Port, then press confirm



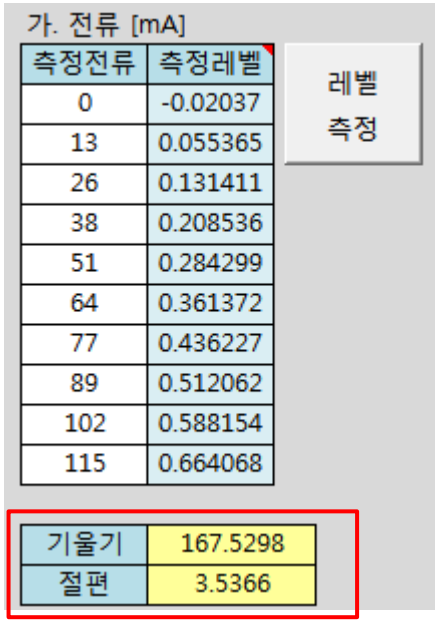


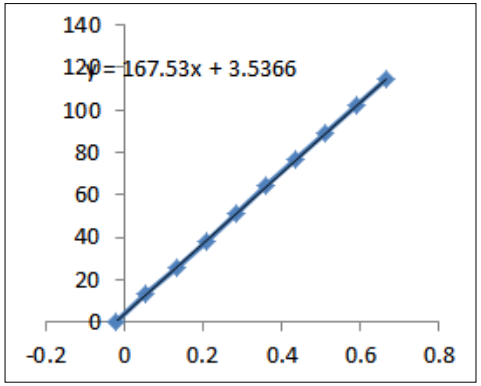
AFT Settings

➢ Current amount adjustment

- Connect Actuator to the Power Supply and install the Current Sensor
- Initialize Current Sensor
- Move to AFT Excel File Setup Page
- Make sure that the current does not flow
- Enter 0 to the measured current first cell and press Level Measure button

  (The measurement current cell that requires measurement must be selected)
- Increase the Voltage manually in the Power Supply
- Input the current value into the next cell of Measurement Current and press Measure button
- Increase gradually Power Supply's Voltage
- Repeat the steps above and measure total 10 levels of measurements
- Check the linearity of the right-side current curve
- Check the gradient and intercept to adjust the current amount





AFT Settings

➢ Stroke Adjustment

- Move to AFR Excel File Setup Page
- Initialize Stroke Sensor (Initialize Zero Point)
- In the first cell of Stroke Measurement, input 0 and click Level Measure Button

(The measurement Stroke cell that requires measurement must be selected

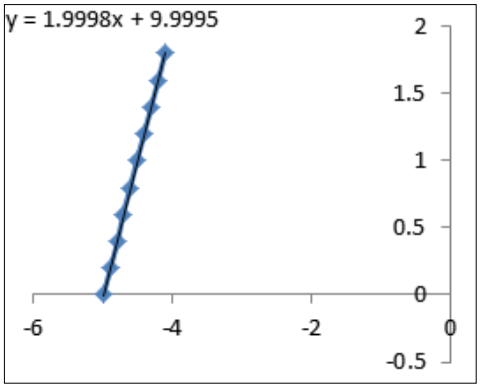
- Move the Sensor part a little.
- In the next cell of Stroke Measurement,
  Input Stroke Amount and click Measure button
- Move the Sensor part a little.
- Repeat the steps above and measure total 10 levels of measurement.
- Check the linearity of the right-side Stroke curve.
- Check the gradient and intercept to adjust the Stroke amount

나. 변위 [mm]

측정변위	측정레벨
0	-5.0012
0.2	-4.89975
0.4	-4.79865
0.6	-4.70083
0.8	-4.60115
1	-4.50046
1.2	-4.39908
1.4	-4.29969
1.6	-4.20152
1.8	-4.09975

레벨 측정

기울기	1.9998
절편	9.9995



AFT Settings

➢ Magnetic Force Adjustment

- Connect Actuator to the Power Supply
- Move to AFT Excel Setup page
- Initialize Force Sensor and make sure that current does not flows
- In the first cell of measurement force, input 0 and click Level Measure button.

(The measurement magnetic force cell
that requires measurement must be selected

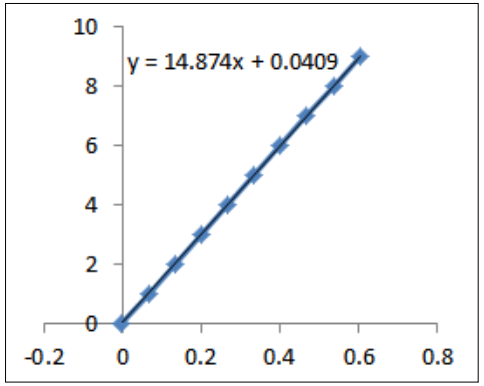
- Gradually increase the voltage on the Power Supply
- In the next cell of Measurement Force,
input the Force value and press Measure button
- Gradually increase the Power Supply Voltage while monitoring the Force Value
- Repeat the steps above and measure total 10 levels of measurement.
- Check the linearity of the right-side Magnetic force curve
- Check the gradient and intercept to adjust the Magnetic Force amount
- Check the gradient and intercept to adjust the Stroke amount

다. 자기력 [N]

측정힘	측정레벨
0	-0.00213
1	0.064998
2	0.132023
3	0.198246
4	0.265771
5	0.333349
6	0.399559
7	0.466565
8	0.535808
9	0.603774

레벨 측정

기울기	14.8739
절편	0.0409

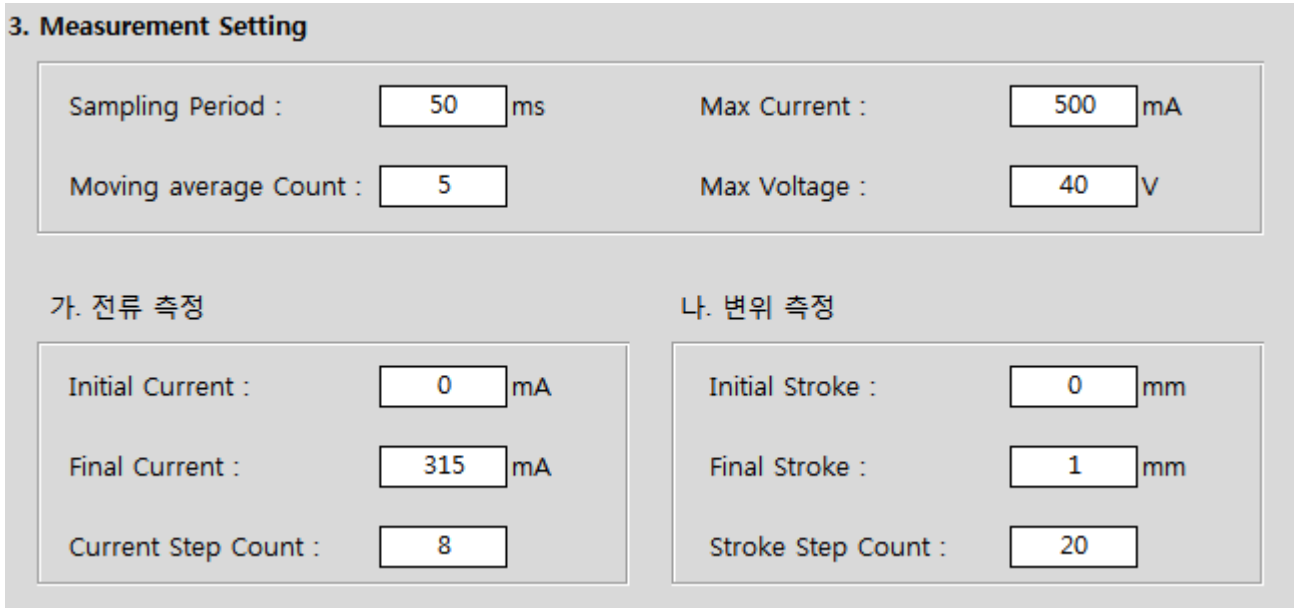


AFT Settings

➢ Setting Measurement Conditions

- Sampling Period :
  Time interval of consecutive measurement
- Moving average Count : Moving average count
- Max. Current : Maximum Current
- Max. Voltage : Maximum Voltage

- Initial Current : Initial Current Measurement
- Final Current : Final Current Measurement
- Current Step Count : No. of Current measurement steps
- Initial Stroke : Initial Stroke Measurement
- Final Stroke : Final Stroke Measurement
- Stroke Step Count : No. of Stroke measurement steps



– Thank You –