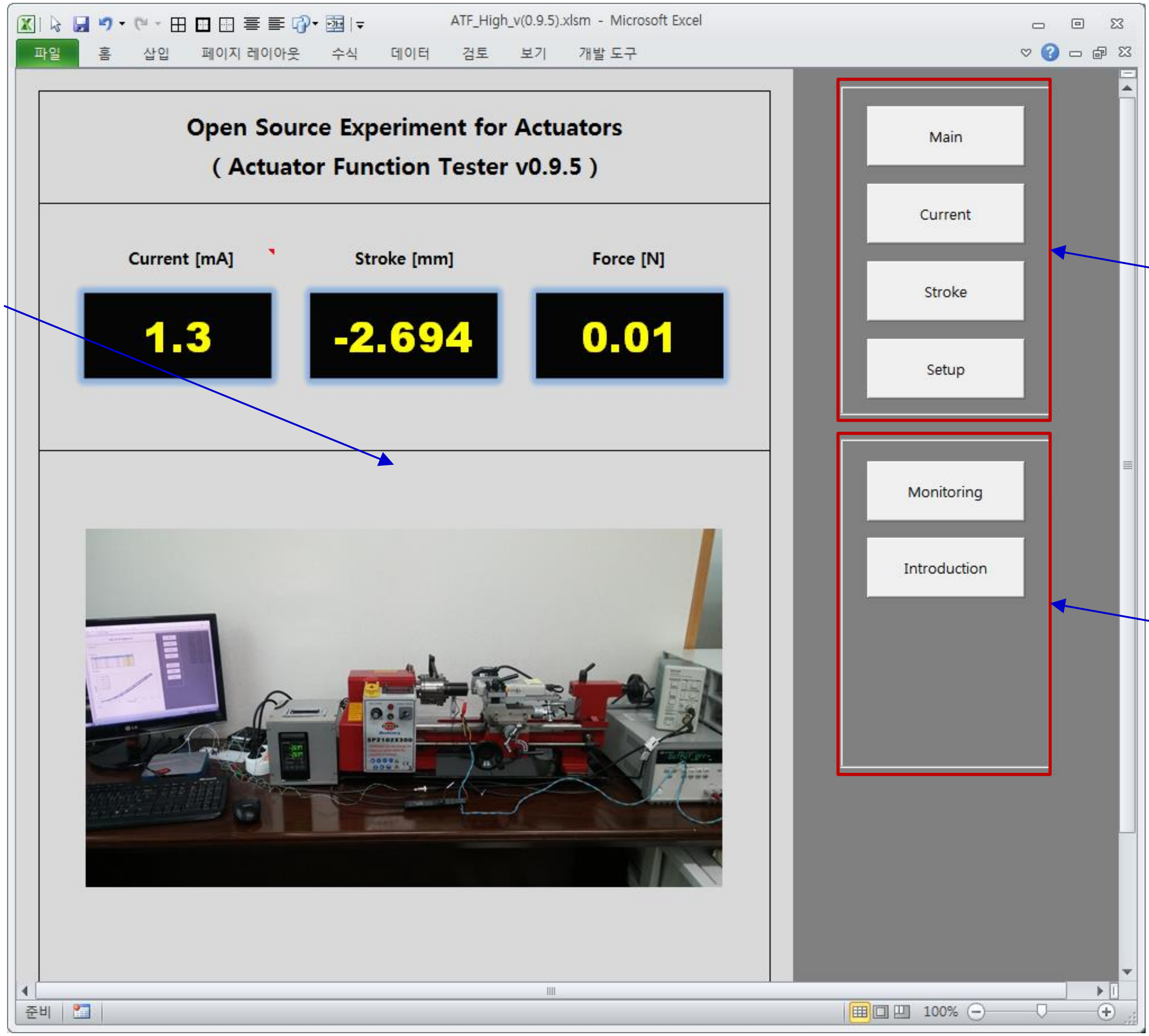
How to use Actuator Function Tester

2017-12-03

http://OpenActuator.org (zgitae@gmail.com)

Program Composition


ATF_High_v(0.9.5).xlsm - Microsoft Excel
파일
홈
삽입
페이지 레이아웃
수식
데이터
검토
보기
개발 도구
Main
Current
Stroke
Setup
Monitoring
Introduction
준비
100%

Open Source Experiment for Actuators
(Actuator Function Tester v0.9.5)

Current [mA]: 1.3
Stroke [mm]: -2.694
Force [N]: 0.01

Main Window

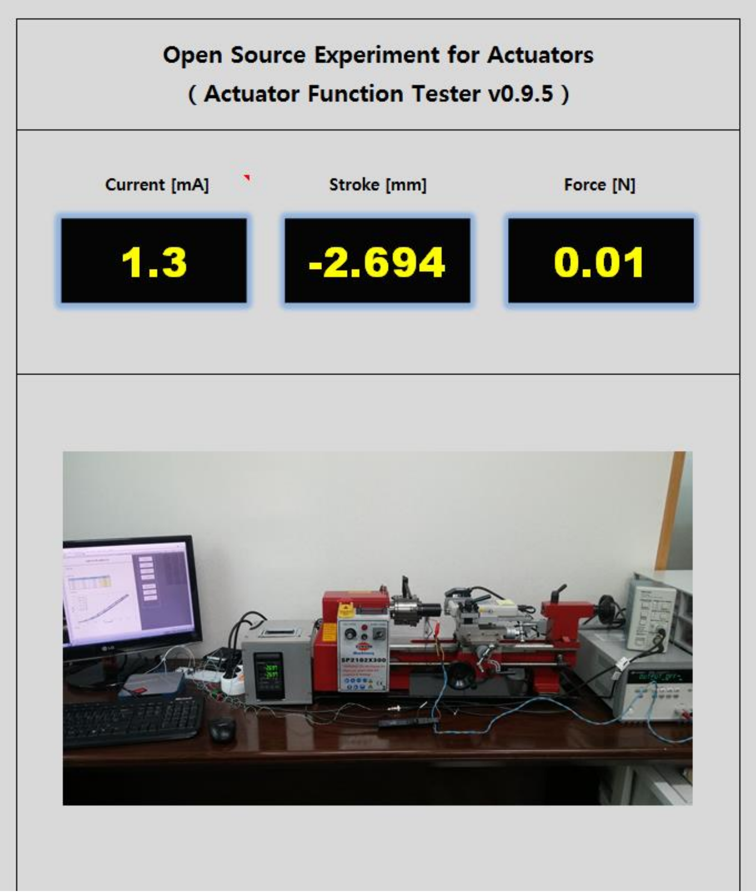
Move Page

Function Buttons

Main Window

➢ Monitoring Window

- View real time Current, Stoke and magnetic force data

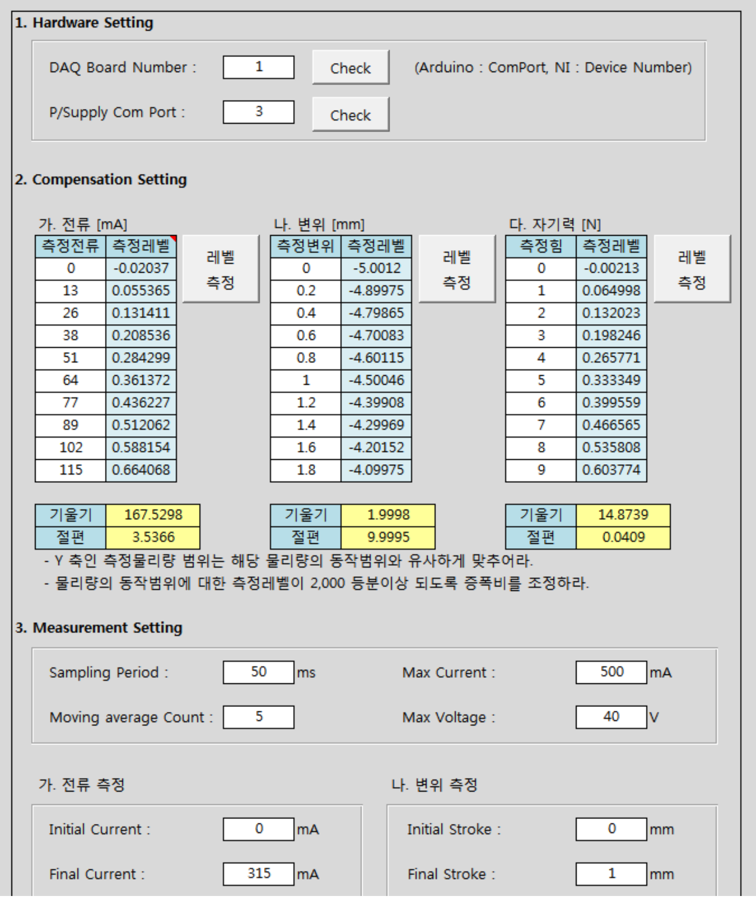


Open Source Experiment for Actuators
(Actuator Function Tester v0.9.5)

Current [mA]	Stroke [mm]	Force [N]
1.3	-2.694	0.01

➢ Settings Window

- Correction and setting of physical values



1. Hardware Setting

DAQ Board Number : 1 (Arduino : ComPort, NI : Device Number)
P/Supply Com Port : 3

2. Compensation Setting

가. 전류 [mA]

측정전류	측정레벨
0	-0.02037
13	0.055365
26	0.131411
38	0.208536
51	0.284299
64	0.361372
77	0.436227
89	0.512062
102	0.588154
115	0.664068

기울기	167.5298
절편	3.5366

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

기울기	1.9998
절편	9.9995

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

기울기	14.8739
절편	0.0409

- Y 축인 측정물리량 범위는 해당 물리량의 동작범위와 유사하게 맞추어라.
- 물리량의 동작범위에 대한 측정레벨이 2,000 등분이상 되도록 증폭비를 조정하라.

3. Measurement Setting

Sampling Period : 50 ms
Max Current : 500 mA
Moving average Count : 5
Max Voltage : 40 V

가. 전류 측정

Initial Current : 0 mA
Final Current : 315 mA

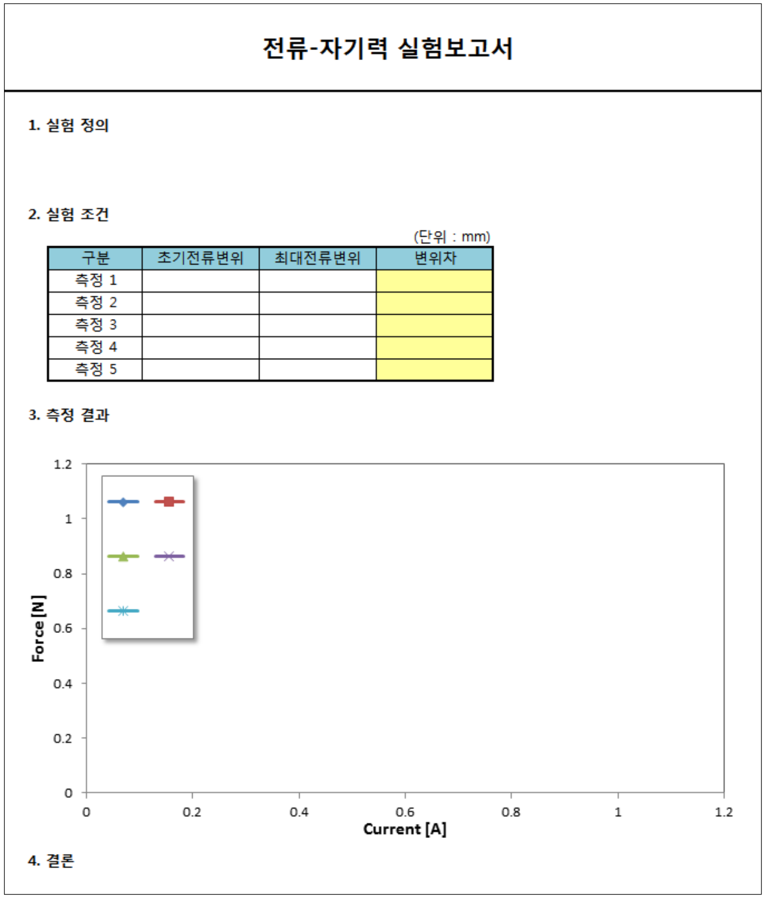
나. 변위 측정

Initial Stroke : 0 mm
Final Stroke : 1 mm

Main Window

➢ Current Window

- Examination of Current-Magnetic force



전류-자기력 실험보고서

1. 실험 정의

2. 실험 조건

(단위 : mm)

구분	초기전류변위	최대전류변위	변위차
측정 1			
측정 2			
측정 3			
측정 4			
측정 5			

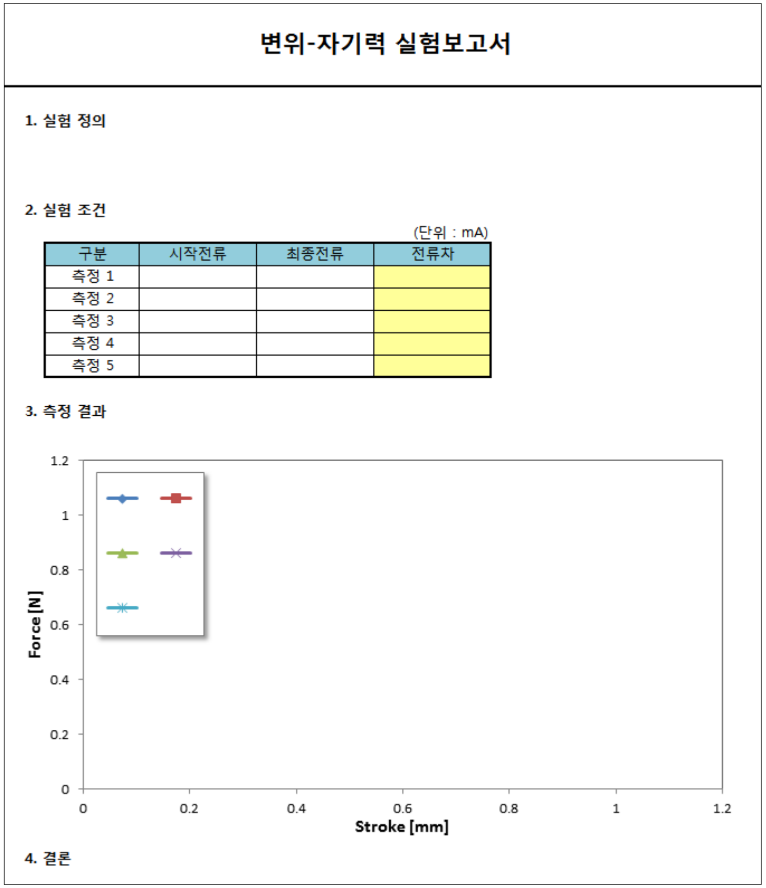
3. 측정 결과

Force [N]
0
0.2
0.4
0.6
0.8
1
1.2
Current [A]
0
0.2
0.4
0.6
0.8
1
1.2

4. 결론

➢ Stroke Window

- Examination of Stroke-Magnetic Force



변위-자기력 실험보고서

1. 실험 정의

2. 실험 조건

(단위 : mA)

구분	시작전류	최종전류	전류차
측정 1			
측정 2			
측정 3			
측정 4			
측정 5			

3. 측정 결과

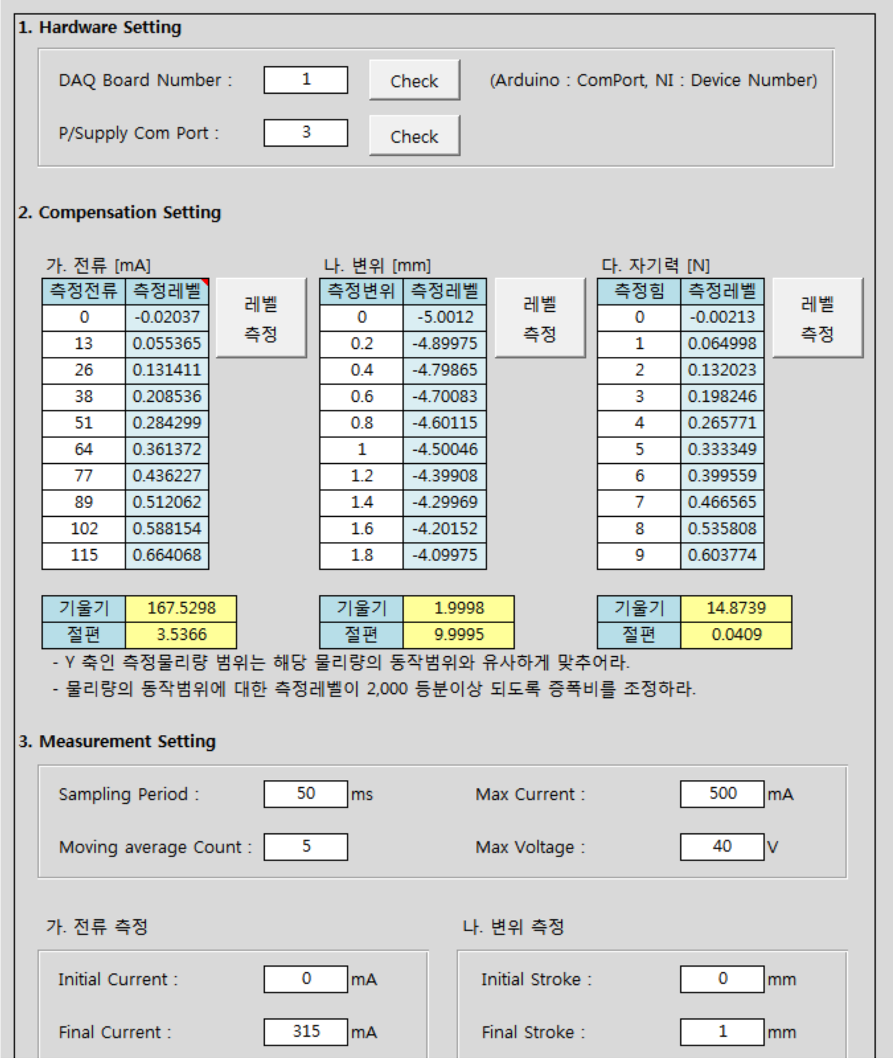
Force [N]
0
0.2
0.4
0.6
0.8
1
1.2
Stroke [mm]
0
0.2
0.4
0.6
0.8
1
1.2

4. 결론

Program Setting

➢ Method of Program Setting

1. Refer the AFT Installation Manual



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Sampling Period : 50 ms

Moving average Count : 5

Max Current : 500 mA

Max Voltage : 40 V

가. 전류 측정

Initial Current : 0 mA

Final Current : 315 mA

나. 변위 측정

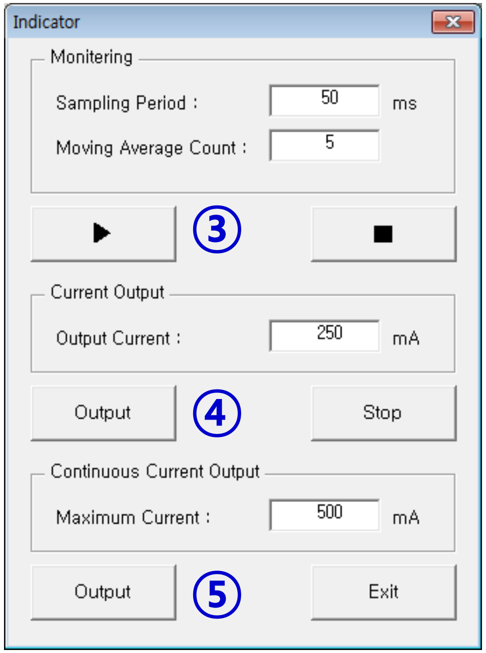
Initial Stroke : 0 mm

Final Stroke : 1 mm

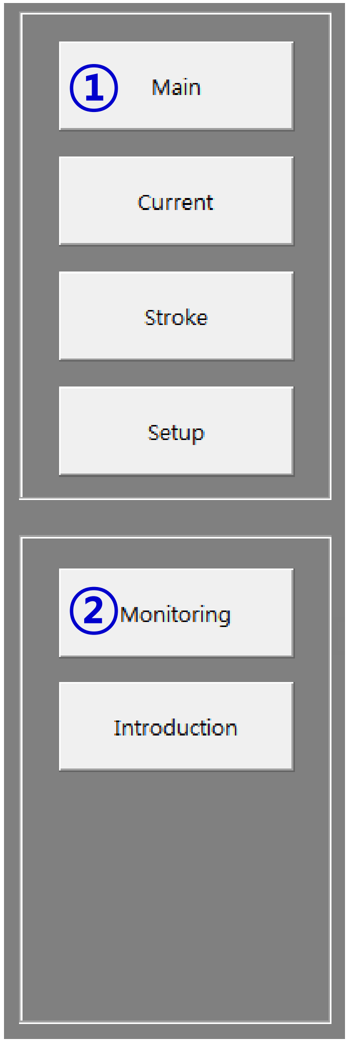
Data Monitoring

➢ Measurement Explanation

1. Move to Monitoring Window
2. Open indicator window
3. View real time measured data and stop
4. Current Output
5. Continuous Current output
6. Measurement of real time data


Indicator
Monitering
▶
③
■
Current Output
Output
④
Stop
Continuous Current Output
Output
⑤
Exit

Sampling Period : 50 ms
Moving Average Count : 5
Output Current : 250 mA
Maximum Current : 500 mA


①
Main
Current
Stroke
Setup
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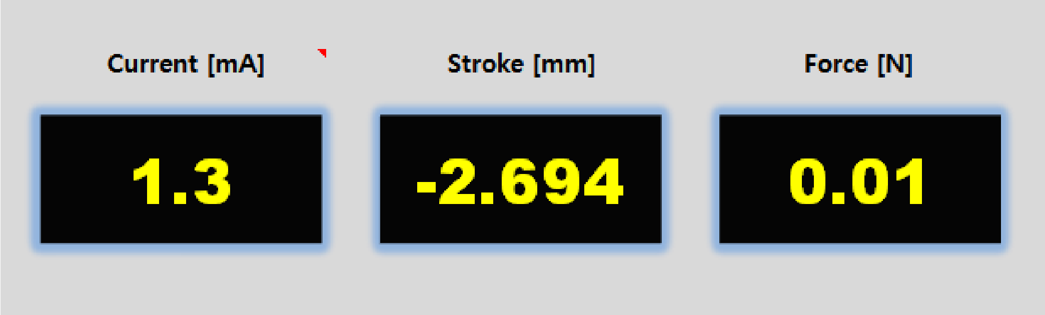
Monitoring
Introduction

⑥

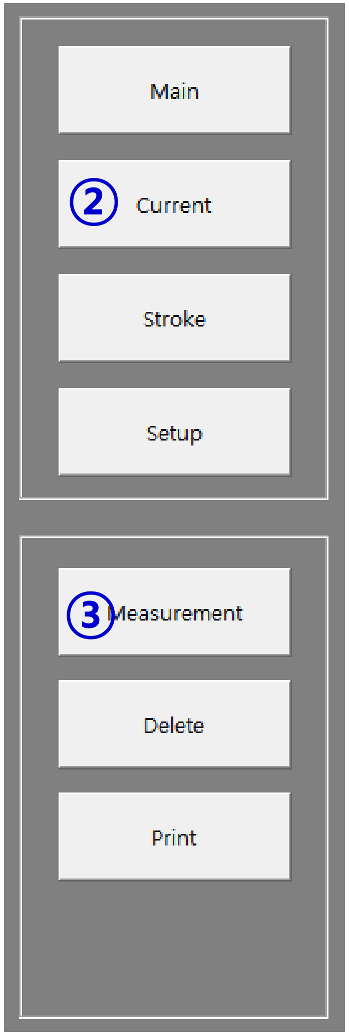


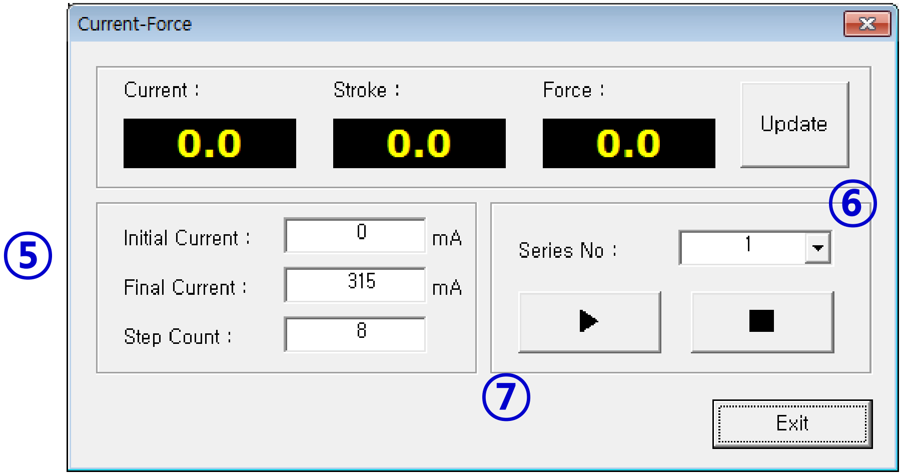
Current [mA]	Stroke [mm]	Force [N]
1.3	-2.694	0.01

Current Measurement

➢ Measurement orders

1. Set Zero Point prior to Actuator stroke Zero Point
    - The position of Zero is the start of the moving parts or the final location
    - The Zero point is sensed by confirming the contact via power sensor
2. Move to Current Window
3. Click Measurement.
4. Move sensor part to the measured Stroke
5. Input measurement of Initial Current, final current and current divisions
6. Set Series No. (Supports total five Series)
7. Click Measure button


Main
②
Current
Stroke
Setup
③
Measurement
Delete
Print


Current-Force

Current : 0.0

Stroke : 0.0

Force : 0.0

Initial Current : 0 mA

Final Current : 315 mA

Step Count : 8

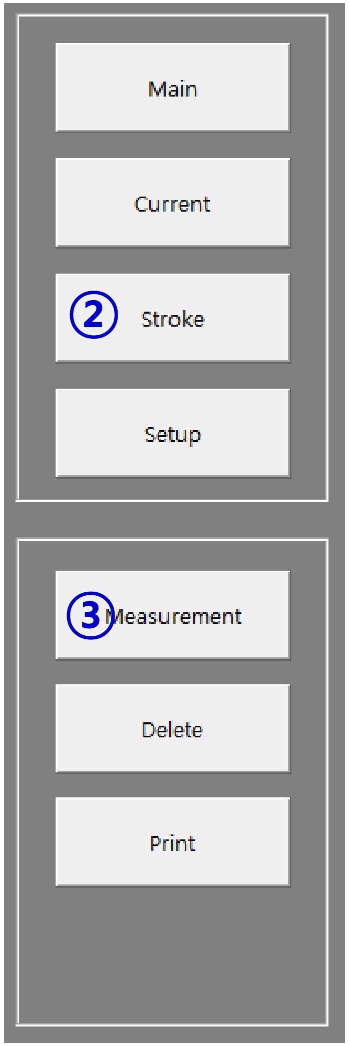
Series No : 1

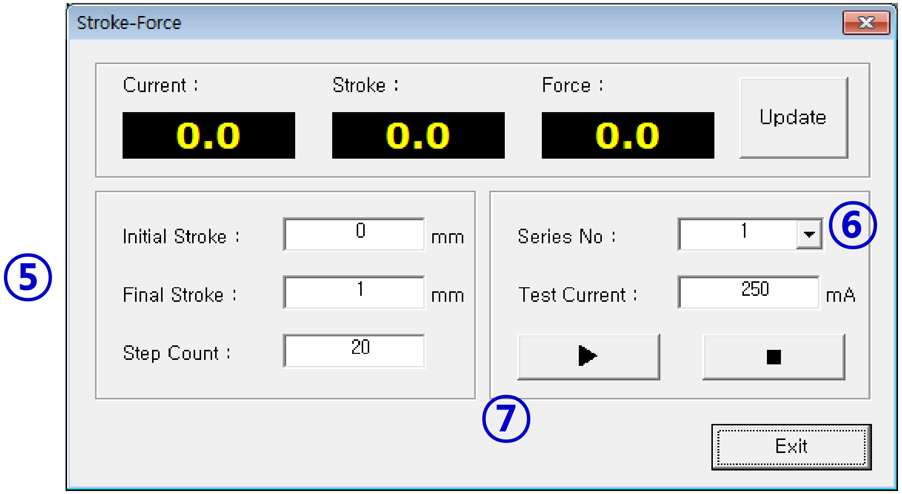
Update
⑤
⑥
⑦
▶
■
Exit

Current Measurement

➢ Measurement orders

1. Set Zero Point prior to Actuator stroke Zero Point
    - The position of Zero is the start of the moving parts or the final location
    - The Zero point is sensed by confirming the contact via power sensor
2. Move to Stroke Window
3. Click Measurement.
4. Input measurement of Initial Stroke, final Stroke and Stroke divisions
5. Move Sensor part below initial stroke
6. Set Series No. and input permitted current(Supports total five Series)
7. Click Measure button


Main
Current
② Stroke
Setup
③ Measurement
Delete
Print


Stroke-Force

Current : 0.0
Stroke : 0.0
Force : 0.0

Initial Stroke : 0 mm
Final Stroke : 1 mm
Step Count : 20

Series No : 1
Test Current : 250 mA

Update
⑤
⑥
⑦
▶
■
Exit

– Thank You –