Research Standing Frame

User Guide

Ran Cheng 05.13.2015 V1.0

Labview Program Location:

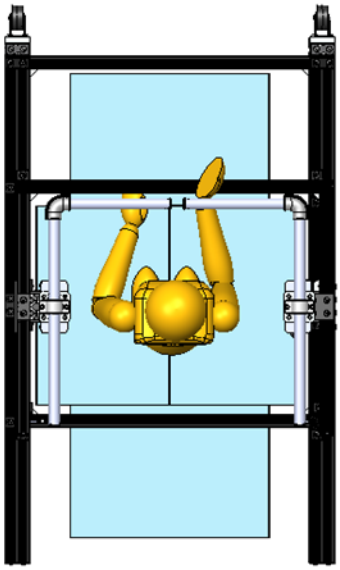
\\cscharkemafs01\Programs\Research Standing Frame V1.0\ResearchStandingFrame-V1.0.vi

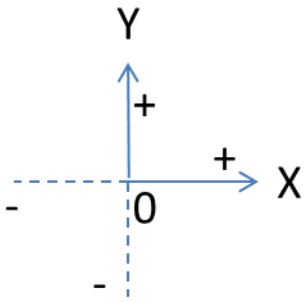
Labview Version

Labview 2012

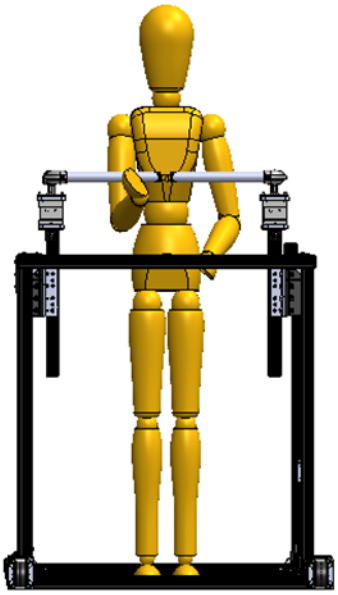
Force Direction

Top View





Front View



BNC Connection

Input

Left force plate – force plate 2

Force Plate 2-1 (X12)	→	AI 0	Force Plate 2-2 (X34)	→	AI 1
Force Plate 2-3 (Y12)	→	AI 2	Force Plate 2-4 (Y34)	→	AI 3
Force Plate 2-5 (Z1)	→	AI 4	Force Plate 2-6 (Z2)	→	AI 5
Force Plate 2-7 (Z3)	→	AI 6	Force Plate 2-8 (Z4)	→	AI 7

Right force plate – force plate 3 (BNC cable with green electrical tape)

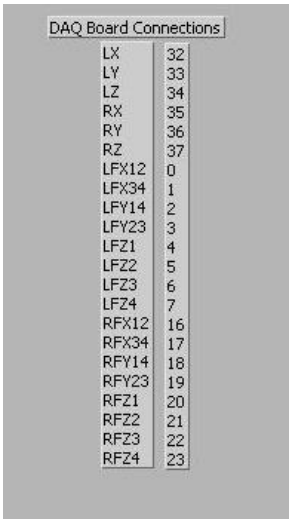
Force Plate 3-1 (X12)	→	AI 16	Force Plate 3-2 (X34)	→	AI 17
Force Plate 3-3 (Y12)	→	AI 18	Force Plate 3-4 (Y34)	→	AI 19
Force Plate 3-5 (Z1)	→	AI 20	Force Plate 3-6 (Z2)	→	AI 21
Force Plate 3-7 (Z3)	→	AI 22	Force Plate 3-8 (Z4)	→	AI 23

Left load cell (LLC, BNC cable with blue electrical tape)

LLC X → AI 32 LLC Y → AI33 LLC Z → AI34

Right load cell (RLC, BNC cable with red electrical tape)

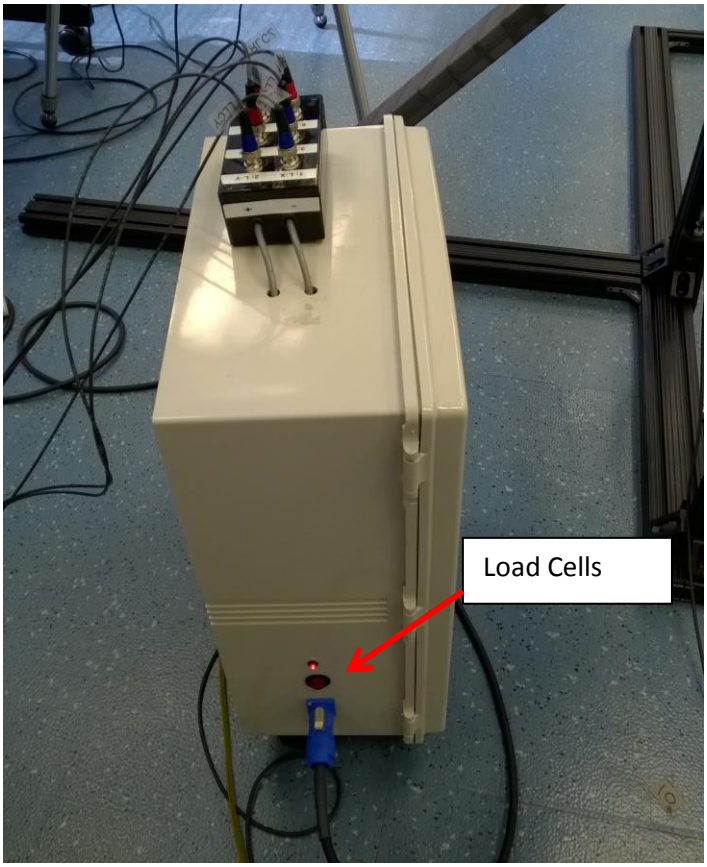
RLC X → AI 35 RLC Y → AI36 RLC Z → AI37

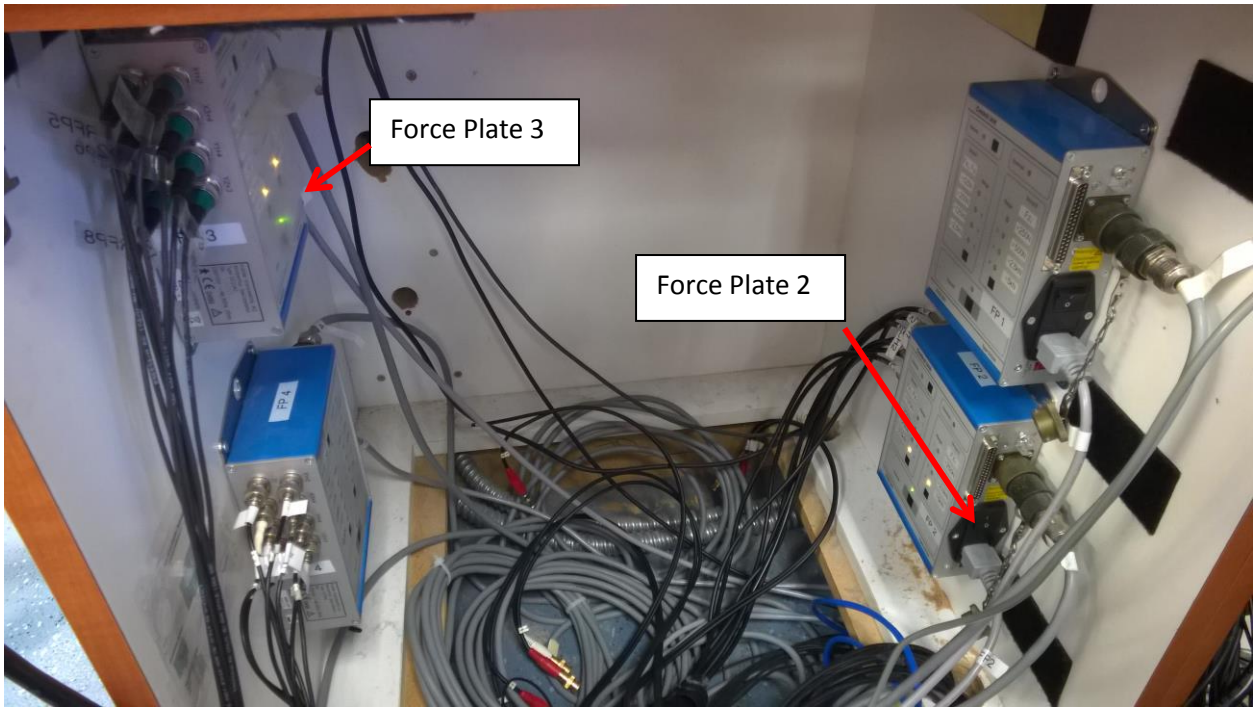


Output

Counter I/O Ctr0 → Sync pulse output

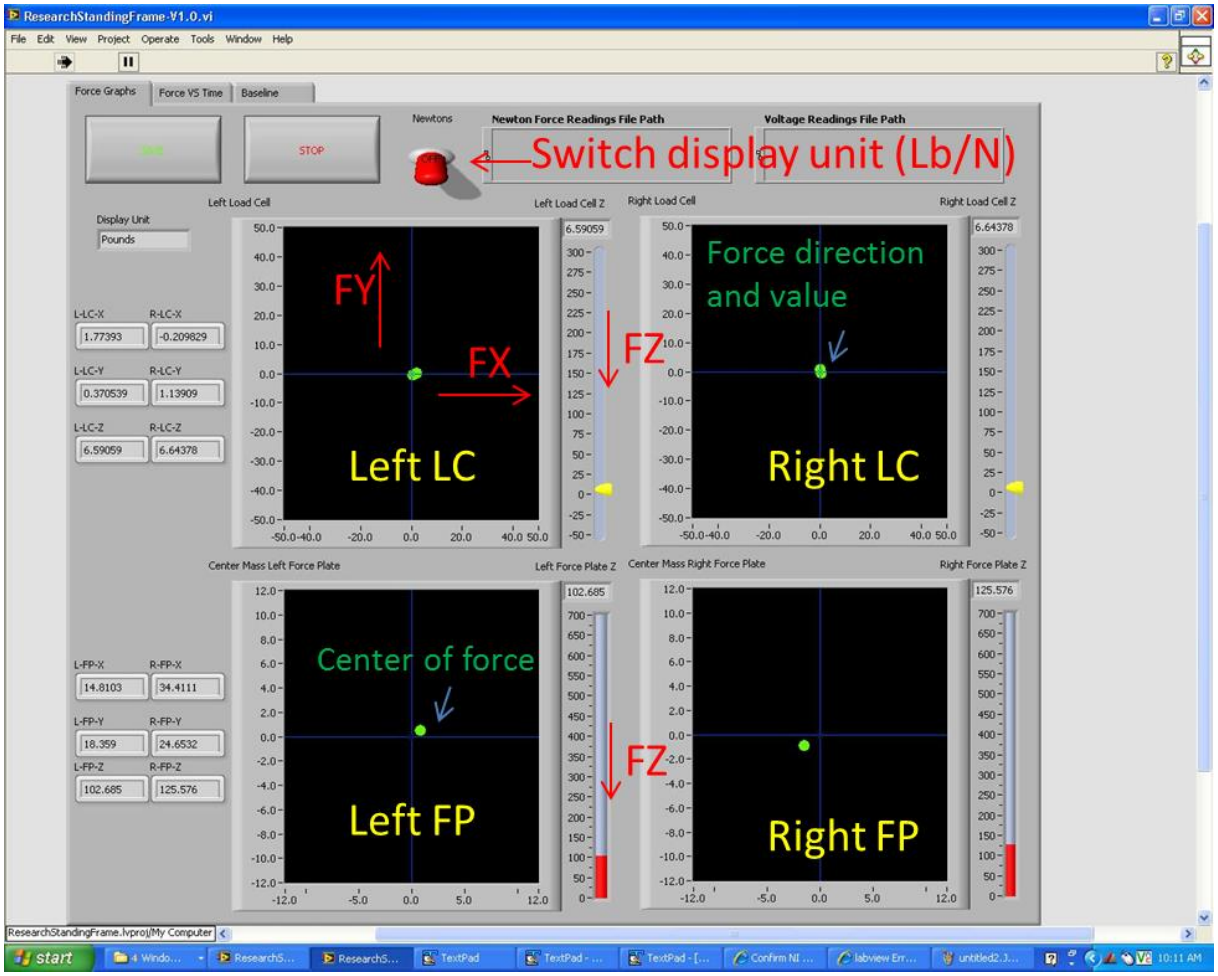
Power Switches of Load Cells and Force Plates



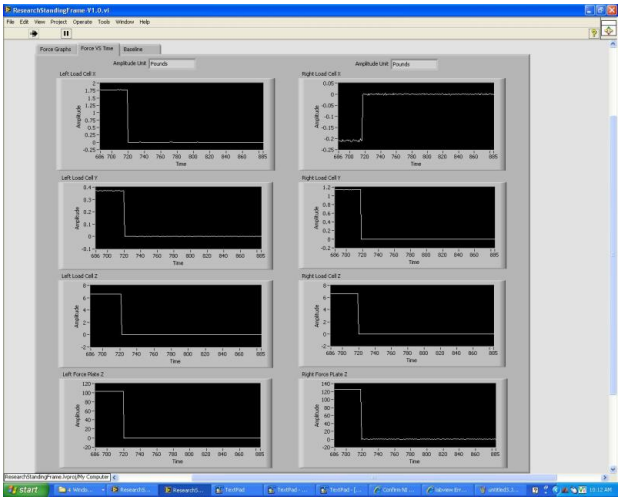


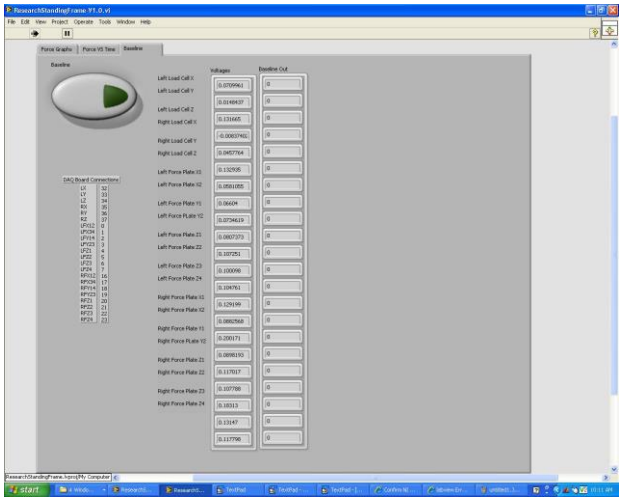
Software Interface

Force Graphs



Force VS Time & Baseline

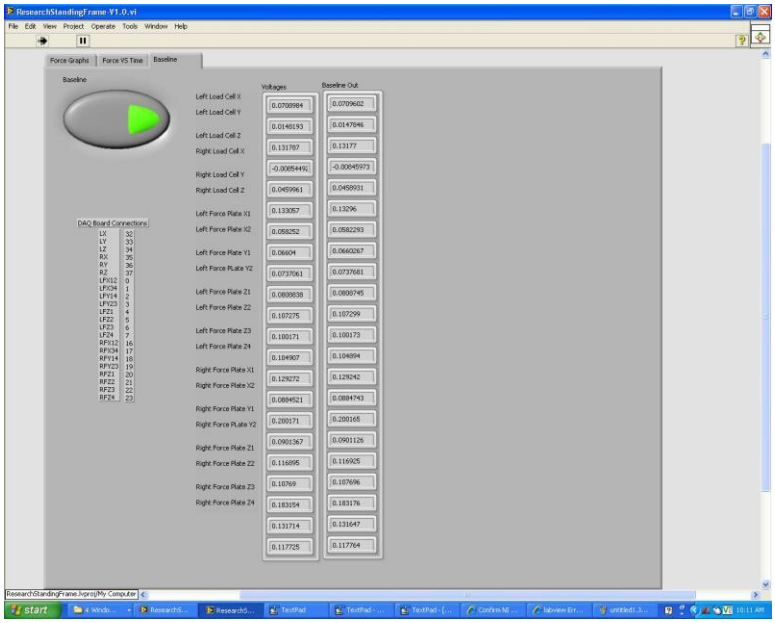


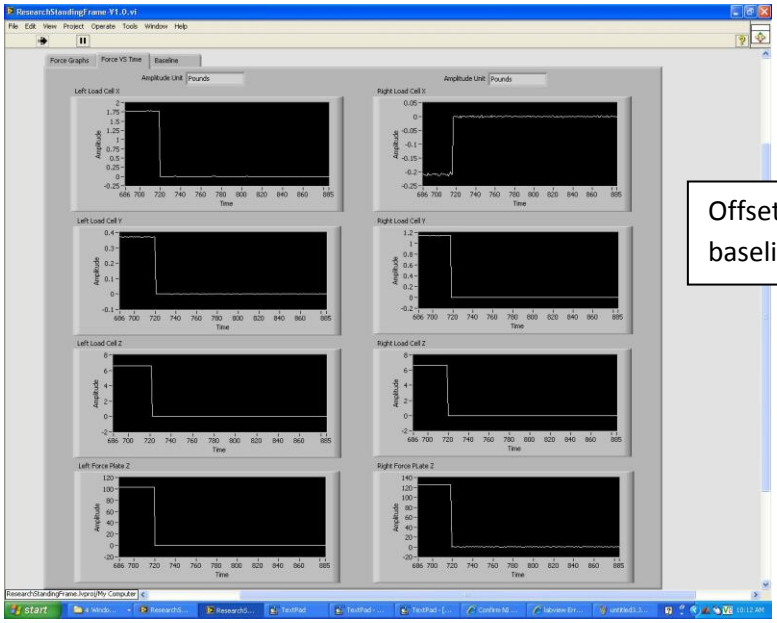


Start the Program

1. Click run botton
2. Remove baseline force reading from load cells and force plates

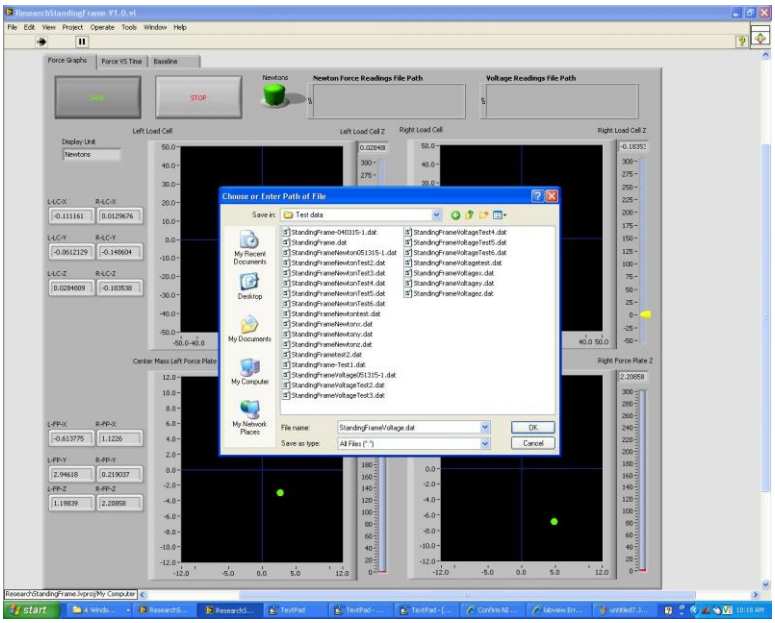
   Click “Baseline” button in “Baseline” tab0



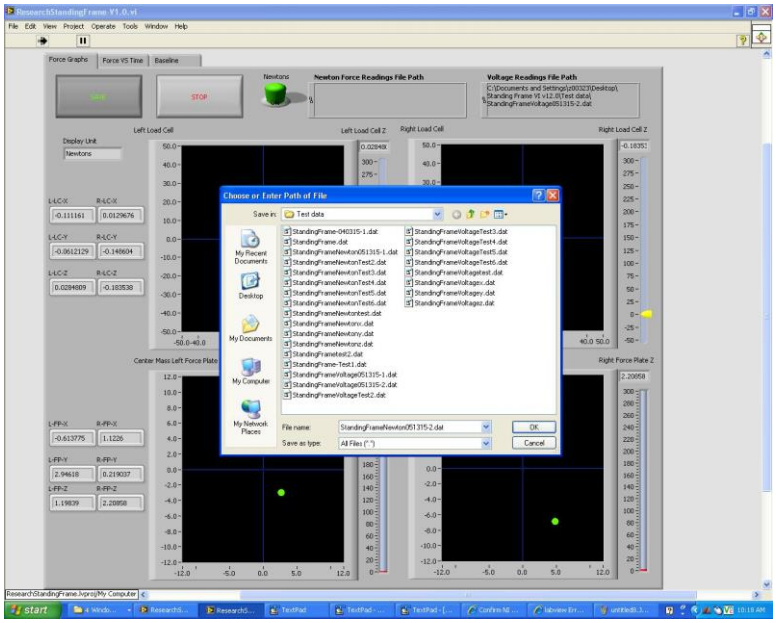


Offsets are removed after baseline measurement

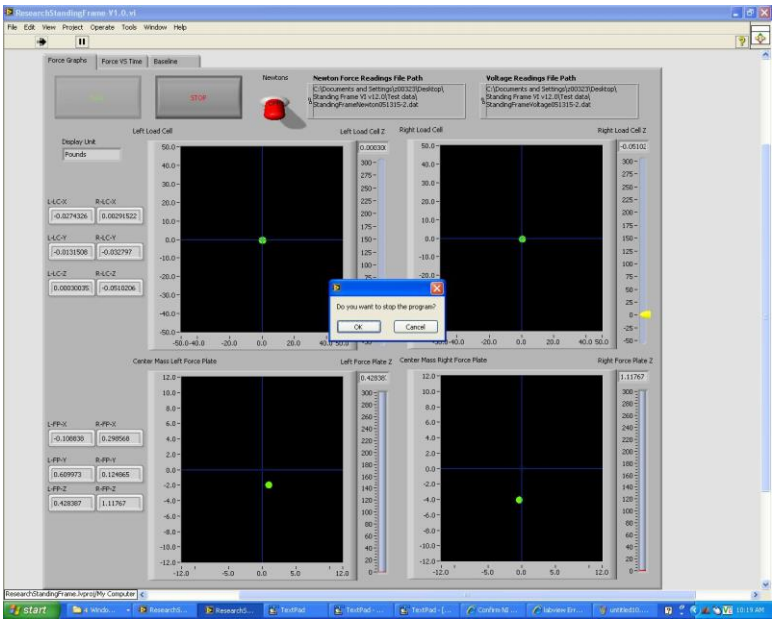
3. Go back to “Force Graph” tab and click “Save” button to save data



Two files will be saved (one is force data and one is voltage data).



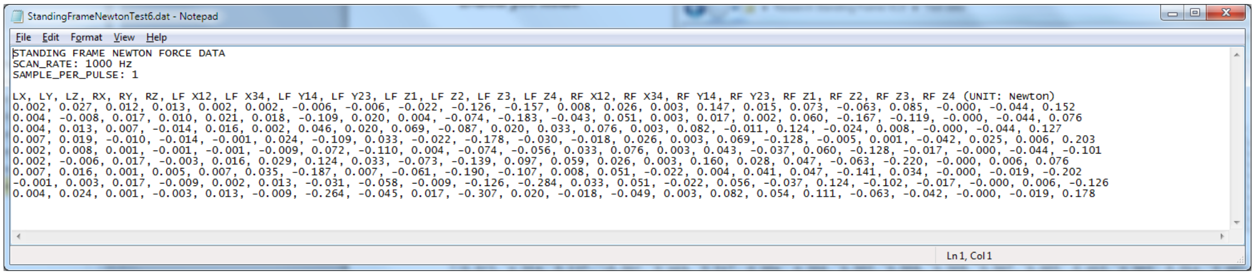
4. Click “Stop” button to stop program



In the dialog box, click “Yes” to stop program and “Cancel” to resume program

Data Format

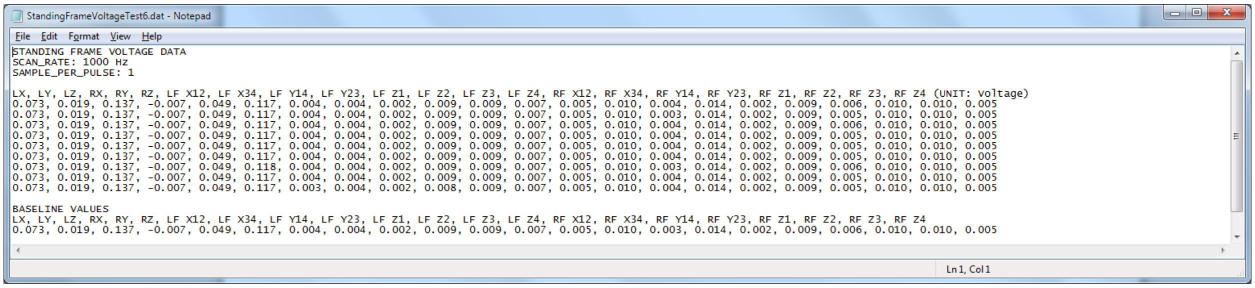
Force data



```
StandingFrameNewtonTest6.dat - Notepad
File Edit Format View Help
STANDING FRAME NEWTON FORCE DATA
SCAN_RATE: 1000 Hz
SAMPLE_PER_PULSE: 1

LX, LY, LZ, RX, RY, RZ, LF X12, LF X34, LF Y14, LF Y23, LF Z1, LF Z2, LF Z3, LF Z4, RF X12, RF X34, RF Y14, RF Y23, RF Z1, RF Z2, RF Z3, RF Z4 (UNIT: Newton)
0.002, 0.027, 0.012, 0.013, 0.002, 0.002, -0.006, -0.006, -0.022, -0.126, -0.157, 0.008, 0.026, 0.003, 0.147, 0.015, 0.073, -0.063, 0.085, -0.000, -0.044, 0.152
0.004, -0.008, 0.017, 0.010, 0.021, 0.018, -0.109, 0.020, 0.004, -0.074, -0.183, -0.043, 0.051, 0.003, 0.017, 0.002, 0.060, -0.167, -0.119, -0.000, -0.044, 0.076
0.004, 0.013, 0.007, -0.014, 0.016, 0.002, 0.046, 0.020, 0.069, -0.087, 0.020, 0.033, 0.076, 0.003, 0.082, -0.011, 0.124, -0.024, 0.008, -0.000, -0.044, 0.127
0.007, 0.019, -0.010, -0.014, -0.001, 0.024, -0.109, 0.033, -0.022, -0.178, -0.030, -0.018, 0.026, 0.003, 0.069, -0.128, -0.005, 0.001, -0.042, 0.025, 0.006, 0.203
0.002, 0.008, 0.001, -0.001, -0.001, -0.009, 0.072, -0.110, 0.004, -0.074, -0.056, 0.033, 0.076, 0.003, 0.043, -0.037, 0.060, -0.128, -0.017, -0.000, -0.044, -0.101
0.002, -0.006, 0.017, -0.003, 0.016, 0.029, 0.124, 0.033, -0.073, -0.139, 0.097, 0.059, 0.026, 0.003, 0.160, 0.028, 0.047, -0.063, -0.220, -0.000, 0.006, 0.076
0.007, 0.016, 0.001, 0.005, 0.007, 0.035, -0.187, 0.007, -0.061, -0.190, -0.107, 0.008, 0.051, -0.022, 0.004, 0.041, 0.047, -0.141, 0.034, -0.000, -0.019, -0.202
-0.001, 0.003, 0.017, -0.009, 0.002, 0.013, -0.031, -0.058, -0.009, -0.126, -0.284, 0.033, 0.051, -0.022, 0.056, -0.037, 0.124, -0.102, -0.017, -0.000, 0.006, -0.126
0.004, 0.024, 0.001, -0.003, 0.013, -0.009, -0.264, -0.045, 0.017, -0.307, 0.020, -0.018, -0.049, 0.003, 0.082, 0.054, 0.111, -0.063, -0.042, -0.000, -0.019, 0.178
Ln 1, Col 1
```

Voltage data



```
StandingFrameVoltageTest6.dat - Notepad
File Edit Format View Help
STANDING FRAME VOLTAGE DATA
SCAN_RATE: 1000 Hz
SAMPLE_PER_PULSE: 1

LX, LY, LZ, RX, RY, RZ, LF X12, LF X34, LF Y14, LF Y23, LF Z1, LF Z2, LF Z3, LF Z4, RF X12, RF X34, RF Y14, RF Y23, RF Z1, RF Z2, RF Z3, RF Z4 (UNIT: Voltage)
0.073, 0.019, 0.137, -0.007, 0.049, 0.117, 0.004, 0.004, 0.002, 0.009, 0.009, 0.007, 0.005, 0.010, 0.004, 0.014, 0.002, 0.009, 0.006, 0.010, 0.010, 0.005
0.073, 0.019, 0.137, -0.007, 0.049, 0.117, 0.004, 0.004, 0.002, 0.009, 0.009, 0.007, 0.005, 0.010, 0.003, 0.014, 0.002, 0.009, 0.005, 0.010, 0.010, 0.005
0.073, 0.019, 0.137, -0.007, 0.049, 0.117, 0.004, 0.004, 0.002, 0.009, 0.009, 0.007, 0.005, 0.010, 0.004, 0.014, 0.002, 0.009, 0.006, 0.010, 0.010, 0.005
0.073, 0.019, 0.137, -0.007, 0.049, 0.117, 0.004, 0.004, 0.002, 0.009, 0.009, 0.007, 0.005, 0.010, 0.004, 0.014, 0.002, 0.009, 0.005, 0.010, 0.010, 0.005
0.073, 0.019, 0.137, -0.007, 0.049, 0.117, 0.004, 0.004, 0.002, 0.009, 0.009, 0.007, 0.005, 0.010, 0.004, 0.014, 0.002, 0.009, 0.005, 0.010, 0.010, 0.005
0.073, 0.019, 0.137, -0.007, 0.049, 0.117, 0.004, 0.004, 0.002, 0.009, 0.009, 0.007, 0.005, 0.010, 0.004, 0.014, 0.002, 0.009, 0.005, 0.010, 0.010, 0.005
0.073, 0.019, 0.137, -0.007, 0.049, 0.118, 0.004, 0.004, 0.002, 0.009, 0.009, 0.007, 0.005, 0.010, 0.003, 0.014, 0.002, 0.009, 0.006, 0.010, 0.010, 0.005
0.073, 0.019, 0.137, -0.007, 0.049, 0.117, 0.004, 0.004, 0.002, 0.009, 0.009, 0.007, 0.005, 0.010, 0.004, 0.014, 0.002, 0.009, 0.005, 0.010, 0.010, 0.005
0.073, 0.019, 0.137, -0.007, 0.049, 0.117, 0.003, 0.004, 0.002, 0.008, 0.009, 0.007, 0.005, 0.010, 0.004, 0.014, 0.002, 0.009, 0.005, 0.010, 0.010, 0.005

BASELINE VALUES
LX, LY, LZ, RX, RY, RZ, LF X12, LF X34, LF Y14, LF Y23, LF Z1, LF Z2, LF Z3, LF Z4, RF X12, RF X34, RF Y14, RF Y23, RF Z1, RF Z2, RF Z3, RF Z4
0.073, 0.019, 0.137, -0.007, 0.049, 0.117, 0.004, 0.004, 0.002, 0.009, 0.009, 0.007, 0.005, 0.010, 0.003, 0.014, 0.002, 0.009, 0.006, 0.010, 0.010, 0.005
Ln 1, Col 1
```