

Noise Analysis

Equipment:

Potentiometer
Breadboard
DC power supply
MatLab Simulink
Multimeter

Goals:

- Confirm a linear behavior between displacement and voltage
- Detect any possible electrical noise/interference that may cause problems with accuracy
- Become more familiar with a critical part of our proposed retrofit design

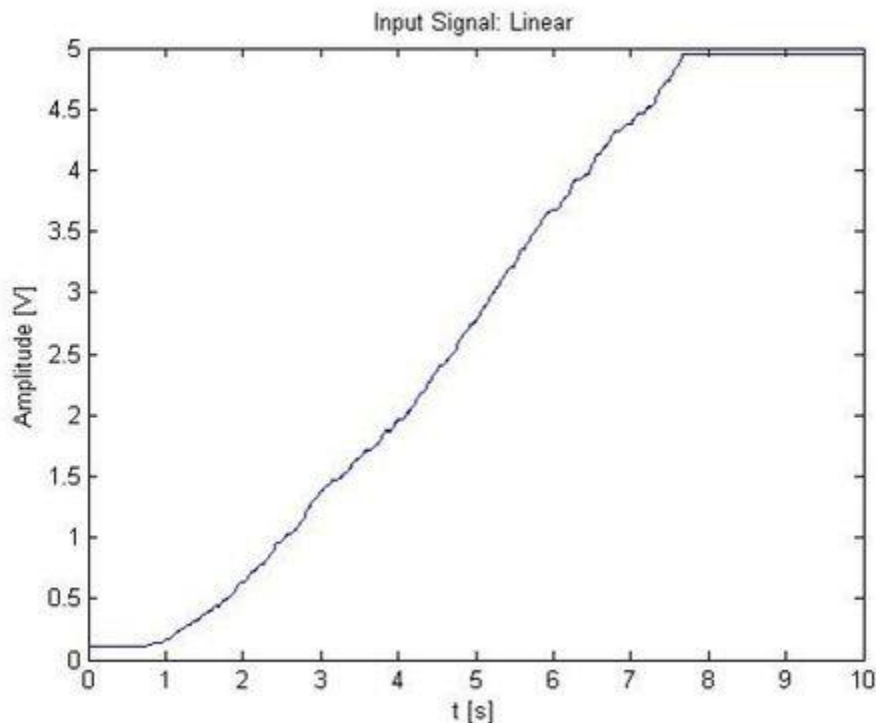
Procedure:

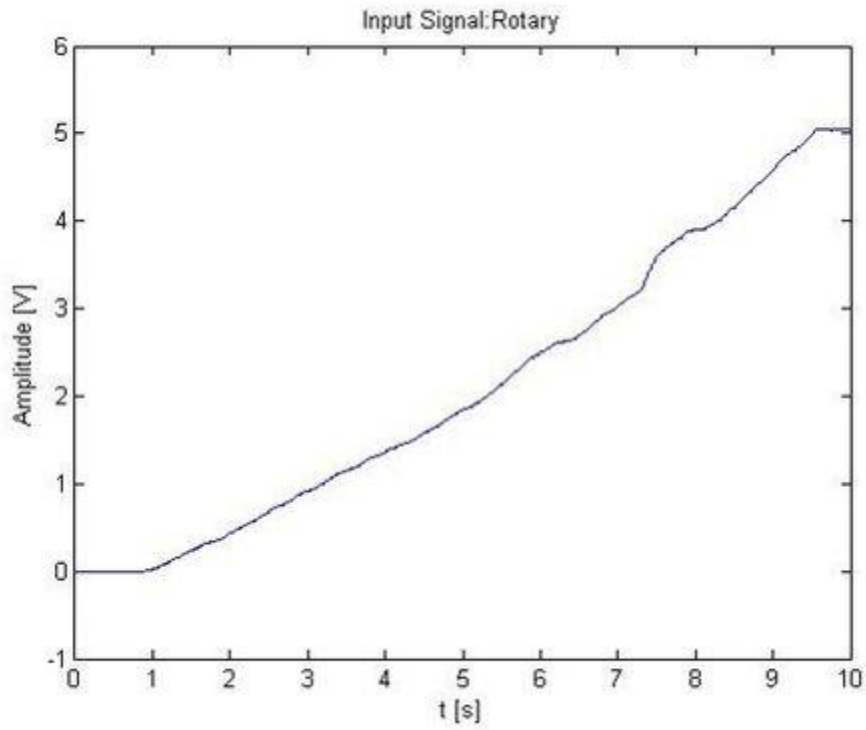
Hook the potentiometer in series with the DC power supply. The middle lead of the potentiometer is hooked up to Simulink probe. With varying sample rates the potentiometer is swept and the voltage observed. With the data collected a Fourier transformed is used to find the presence of any noise.

Results:

- A linear behavior was observed, plotting a curve to fit data should be relatively straightforward
- Interference was not present. There is a certain level of variation in voltage level with the potentiometer at the same displacement, but this can easily be remedied.
- The team as a whole became more familiar with the proposed equipment.

Raw Data





FFT on Data

