# Amplifier board bring up

## Equipment

AD2

### TEST 1: Does the board work as intended?

1. Apply 5V across power rails.
2. Measure and record offset voltage
   1. Expected offset voltage: 1.66V
3. Vary (strainD+, strainD-) Record output voltage
   1. 5mV - expected
   2. -5mV – expected
4. Input sin wave (100Hz (-15mV,15mV) 🡨 need to check that this range will not possibly break board)
   1. Expected output ranges from (100mV,3.10V) – just a quick guess

### TEST 2: Stimulating with realistic electrical conditions

1. Determine length of wire expected to be wired from sensor-amplifier to hub
2. Determine expected voltage level provided by HUB, and apply that voltage to power amplifiers across wire length
3. Determine the expected differential strain voltage levels corresponding to 8000lb’s
4. Measure power rails
   1. Note any significant variation amongst boards
5. Apply strain voltages between at the determined differential strain voltage level.

### TEST 3: Stimulating realistic mechanical conditions – may or may not be run depending on test difficulty.

1. Given the realistic voltage and wire conditions.
2. Apply 8000lb’s of force and measure the signal.

There is a chance that there are significant variations amongst the board that each sensor will be individually calibrated. Things like temperature could even affect it.

(OFFSET, GAIN)

# CALIBRATION SEQUENCE

To calibrate it. We need to know precisely how the voltage across strain gauge is correlated with strain.