

## Two Axis Sensor

### Features

- Linear and bidirectional response measures angular displacement in two orthogonal planes with repeatability of  $0.18^\circ$
- Zero drift means high stability and reliability over time
- Made of highly flexible, soft, silicone elastomer for unrestricted bending
- Differential capacitance measurement has high CMRR to both electrical and mechanical noise
- Ultra-low power consumption with active run current down to  $78\mu\text{A}$
- Convenient I<sup>2</sup>C interface with onboard calibration and bootloader
- Water/weather resistant and highly durable



### How It Works

The Nitto Bend Technologies Two Axis sensor provides a differential capacitance measurement that is linearly proportional to the angular displacement of the sensor in two orthogonal planes. Unlike traditional flex sensors, the one axis sensor produces repeatable and precise angular output regardless of path, bending radius, or strain. Although these sensors are stretchable, the differential measurement of each axis assures that common mode signals such as stretching are rejected and only flexion is measured.

### Sensor Specifications

- Dimensions: 100mm x 4mm x 4mm  
(3.94in x 0.16in x 0.16in)
- Average Sensitivity: 0.274 pF/ $^\circ$
- Repeatability:  $0.18^\circ$
- Life Cycle: >1M cycles
- Usage Condition:  
Minimum bend radius of 2x sensor thickness

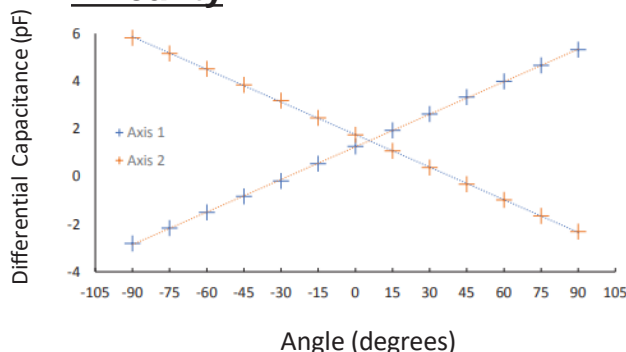
### Electrical Specifications

- Sensitivity:  $0.016^\circ$  LSB
  - Voltage: 1.8 - 3.63V
- Output: I<sup>2</sup>C
- Power Consumption @ 3.3V
  - 243  $\mu\text{A}$  @ 100 Hz
  - Active run down to 97  $\mu\text{A}$
  - 1.7  $\mu\text{A}$  suspended
  - 50 nA shutdown
- Power Consumption @ 1.8V
  - 223  $\mu\text{A}$  @ 100 Hz
  - Active run down to 78  $\mu\text{A}$
  - 1.7  $\mu\text{A}$  suspended
  - 55 nA shutdown

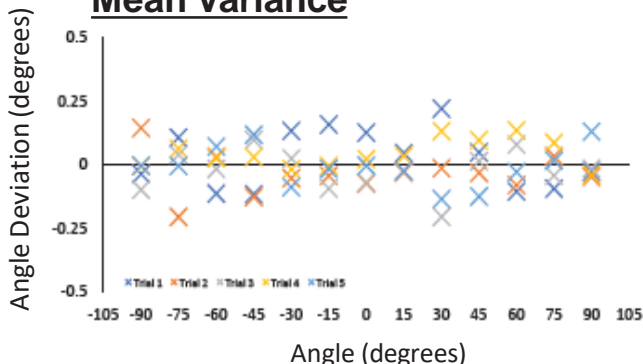
### Graphs

The Two Axis sensor provides angular displacement data in degrees via an I<sup>2</sup>C bus. Values reported on this sheet are indicative of this class of sensors.

#### Linearity



#### Mean Variance



#### [Product Warranty]

- The sensor should activate when the power is turned on
- Sensor will connect to our app and display data  
[Precision and resolution are not guaranteed]
- The sensor should remain undamaged within the warranty period  
[6 months from the date of order]

\* The above values are measured values and are not guaranteed.

\* The above values are subject to change without prior notice.

\* Reproduction of the data and information without prior written consent is prohibited.