# bendlabs

# Two Axis

## Features

-Linear and bidirectional response measures
  angular displacement in two orthogonal planes with
repeatability of 0.18°
- Zero drift means high stability and reliablity 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 78uA
- Convenient I²C interface with onboard
  calibration and bootloader
- Water/weather resistant and highly durable

## How It Works

The Bend Labs 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/°
- Repeatability:  0.18°
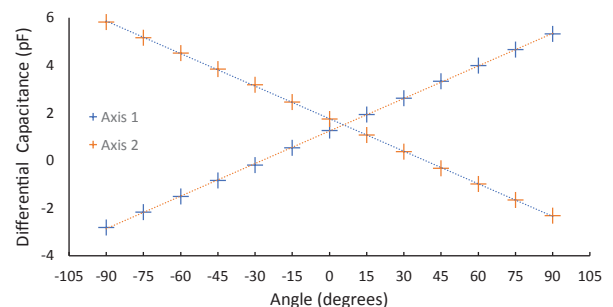- Life Cycle:  >1M cycles

## Electrical Specifications

- Sensitivity:  0.016° LSB
- Voltage: 1.8 - 3.63V
- Output: I²C
- Power Consumption @ 3.3V
        - 243 uA @ 100 Hz
        - Active run down to 97 uA
        - 1.7 uA suspenced
        - 50 nA shutdown
- Power Consumption @ 1.8V
        - 223 uA @ 100 Hz
        - Active run down to 78 uA
        - 1.7 uA suspeneded
        - 55 nA shutdown

## Graphs

*The TwoAxis sensor provides angular displacement data in degrees via an I²C bus. Values reported on this sheet are indicative of this class of sensors.*

Linearity



Mean Variance