Flex Sensor 2.2 Inch

A simple Flex Sensor 2.2″ – Bend Sensor with a length of 2.2″ which bends and flexes with a physical device. As the sensor is flex, the resistance across the sensor increases. A connector is 0.1″ spaced and breadboard friendly. Applications in – Robotics, Gaming (Virtual Motion), Medical Devices, Computer Peripherals, Musical Instruments, Physical Therapy.

The flex sensor is a bend detecting sensor that has got numerous applications in robotics, medical and haptic technology. The resistance of these sensors changes in accordance with the bend, which can be measured using any microcontroller.

Note: The base of the sensor is sensitive to bending and may get damaged. Make sure that you bend only the sensing area.

FEATURES:

- Angle Displacement Measurement.
- Bends and Flexes physically with the motion device.
- Simple Construction
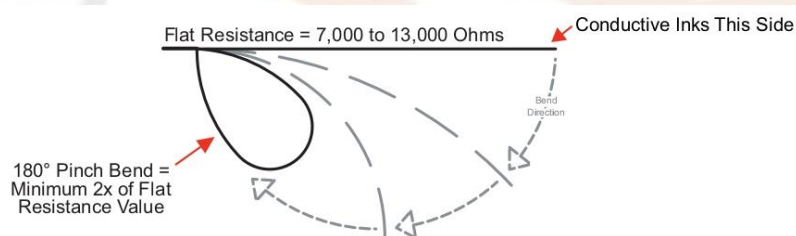
SPECIFICATIONS:

MECHANICAL SPECIFICATIONS:

- Life Cycle: >1 million
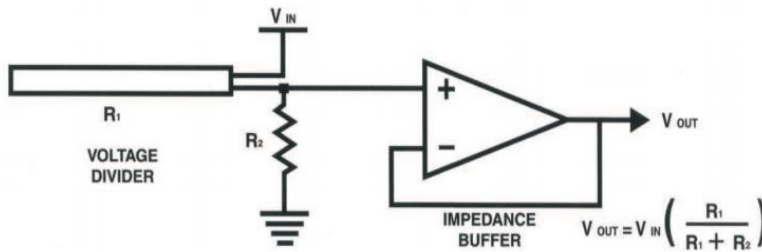- Height: 0.43mm (0.017")
- Temperature Range: -35°C to +80°C

ELECTRICAL CHARACTERISTICS:

- Flat Resistance: 10K Ohms ±30%
- Bend Resistance: minimum 2 times greater than the flat resistance at 180° pinch bend
- Power Rating: 0.5 Watts continuous; 1Watt Peak

SCHEMATIC DIAGRAM AND DESCRIPTION:

Series of Flex Sensor:

FS	—	L	—	0095	—	103	—	ST
Series		Model		Active Length		Resistance		Connectors
FS = Flex Sensor		L = Linear		0095 = 95.25mm		103 = 10 KOhms		ST = Solder Tab

Flat Resistance = 7,000 to 13,000 Ohms

Conductive Inks This Side

Bend Direction

180° Pinch Bend = Minimum 2x of Flat Resistance Value

The impedance buffer in the [Basic Flex Sensor Circuit] (above) is a single sided operational amplifier, used with these sensors because the low bias current of the op amp reduces errer due to source impedance of the flex sensor as voltage divider. Suggested op amps are the LM358 or LM324.

It can also test your flex sensor using the simplest circut, and skip the op amp

- **Adjustable Buffer -** A potentiometer can be added to the circuit to adjust the sensitivity range.
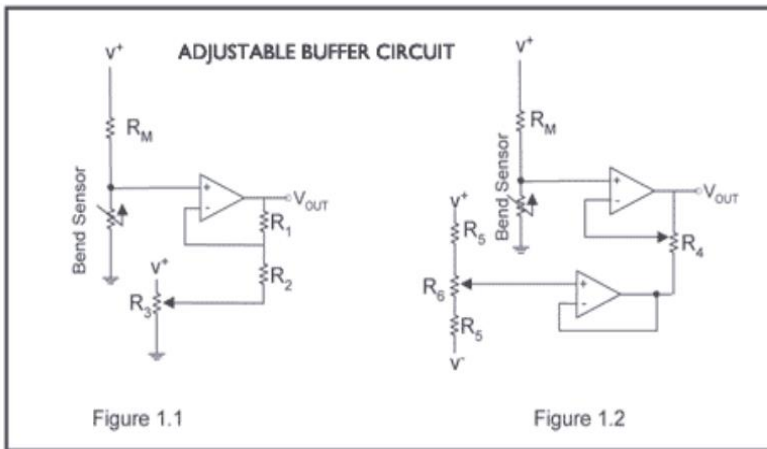

- **Variable Deflection Threshold Switch -** An op amp is used and outputs either high or low depending on the voltage of the inverting input. In this way you can use the flex sensor as a switch without going through a microcontroller.

VARIABLE DEFLECTION THRESHOLD SWITCH
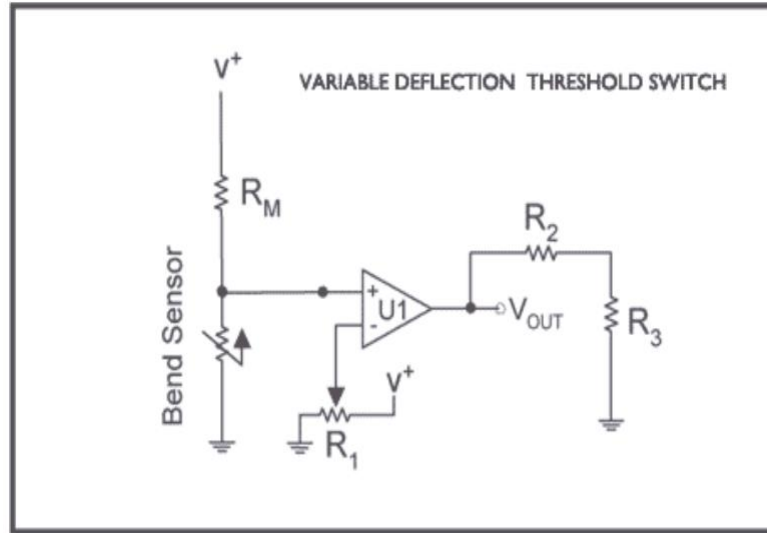
- **Resistance to Voltage Converter -** use the sensor as the input of a resistance to voltage converter using a dual sided supply op-amp. A negative reference voltage will give a positive output. Should be used in situations when you want output at a low degree of bending.

RESISTANCE TO VOLTAGE CONVERTER

DIMENSION:

PART LENGTH
112.24 [4.419]

ACTIVE LENGTH
95.25 [3.750]

6.35 [0.250]
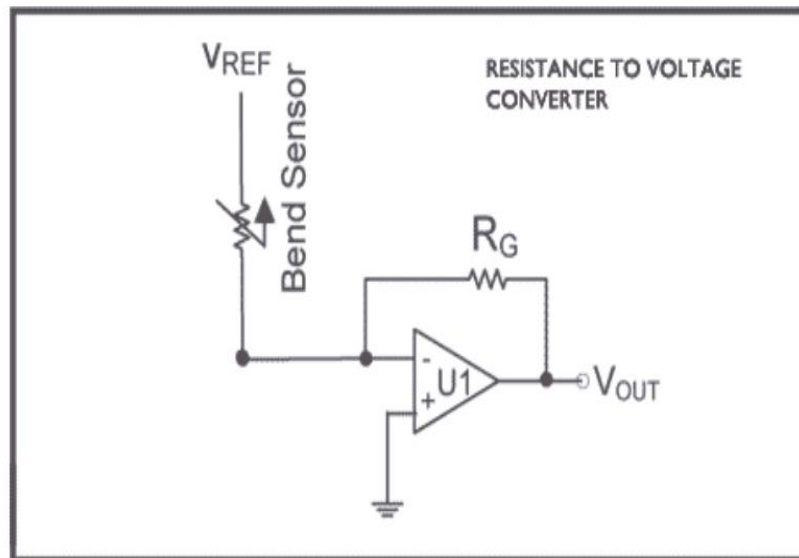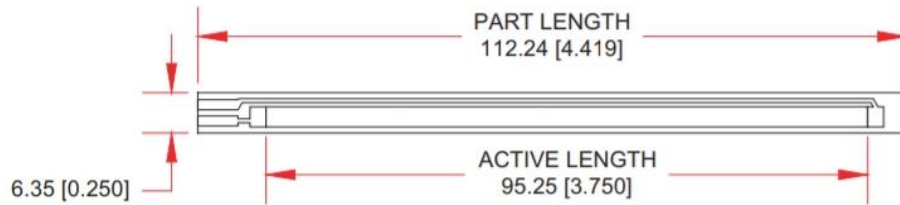
APPLICATIONS:

- Angle Displacement Measurement
- Bends and Flexes physically with the motion device
- Possible Uses
- Robotics
- Gaming (Virtual Motion)
- Medical Devices
- Computer Peripherals
- Musical Instruments
- Physical Therapy

PACKAGE INCLUDES:

1 x SpectraSymbol Flex Sensor 2.2″ Bend Sensor for Hand Gesture Recognition.