FLEX SENSOR FS
Special Edition Length

spectrasymbol
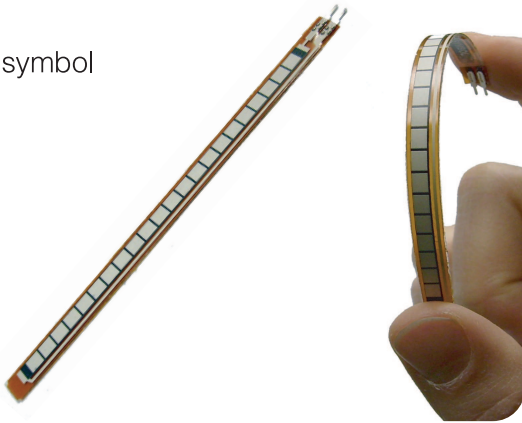
Features

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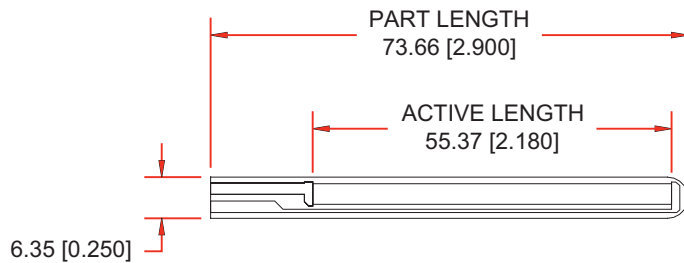- Simple Construction
- Low Profile

Mechanical Specifications

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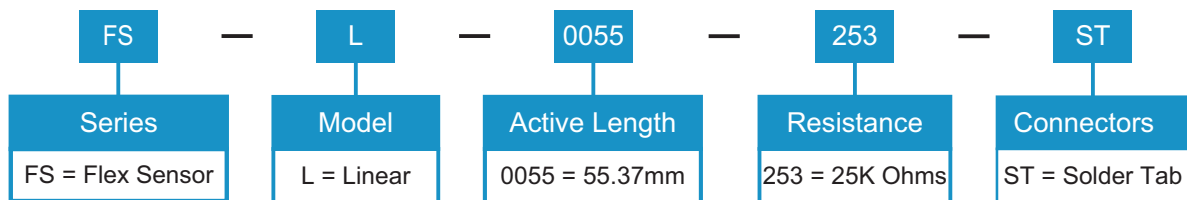- Height: ≤0.43mm (0.017")
- Temperature Range: -35°C to +80°C

Electrical Specifications

- Flat Resistance: 25K Ohms
- Resistance Tolerance: ±30%
- Bend Resistance Range: 45K to 125K Ohms (depending on bend radius)
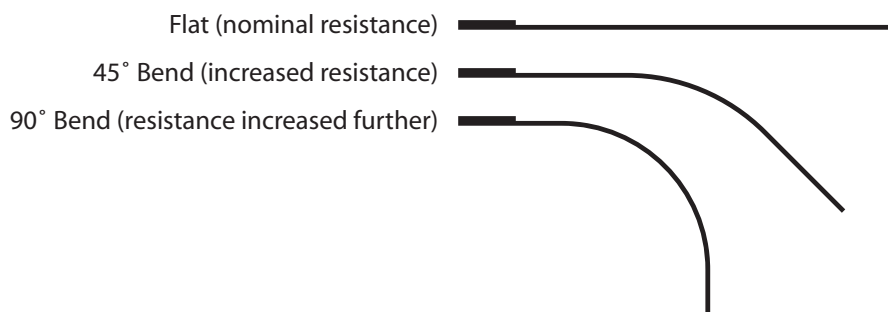- Power Rating : 0.50 Watts continuous. 1 Watt Peak
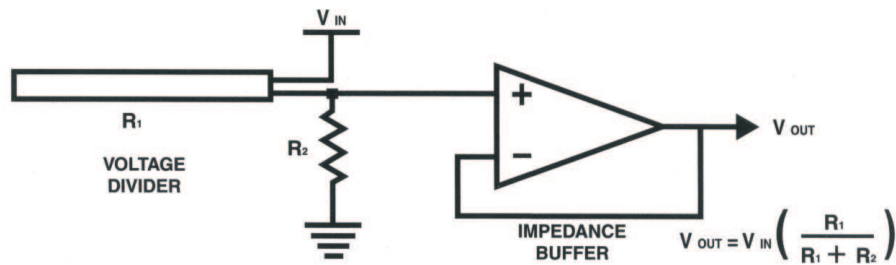
Dimensional Diagram - Stock Flex Sensor

PART LENGTH
73.66 [2.900]

ACTIVE LENGTH
55.37 [2.180]

6.35 [0.250]

How to Order - Stock Flex Sensor

FS	—	L	—	0055	—	253	—	ST

Series	Model	Active Length	Resistance	Connectors
FS = Flex Sensor	L = Linear	0055 = 55.37mm	253 = 25K Ohms	ST = Solder Tab

How It Works

Flat (nominal resistance)

45˚ Bend (increased resistance)

90˚ Bend (resistance increased further)

BASIC FLEX SENSOR CIRCUIT:

$$V_{OUT} = V_{IN}\left(\frac{R_1}{R_1 + R_2}\right)$$

*Following are notes from the ITP Flex Sensor Workshop*

"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."

"You 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."
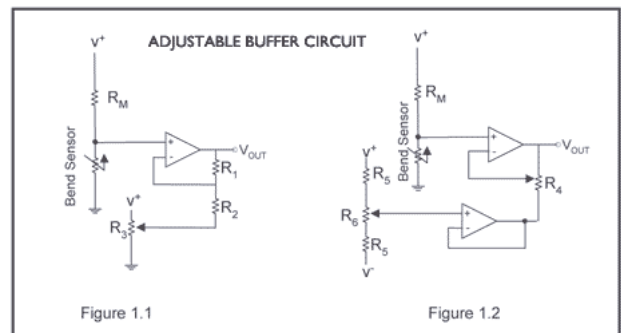
"Variable Deflection Threshold Switch - an op amp is used and outputs either high or low depending on the voltage of the inverting input. In this way you can use the flex sensor as a switch without going through a microcontroller."
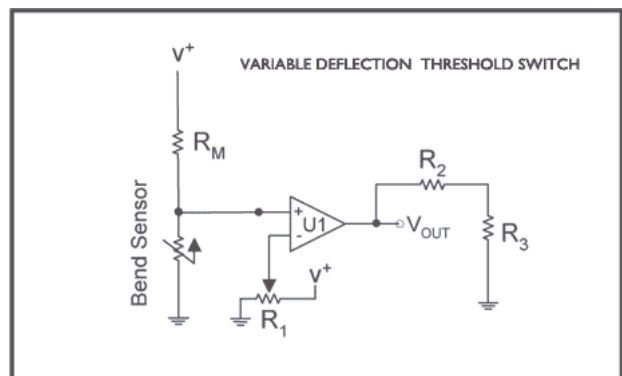
"Resistance to Voltage Converter - use the sensor as the input of a resistance to voltage converter using a dual sided supply op-amp. A negative reference voltage will give a positive output. Should be used in situations when you want output at a low degree of bending."
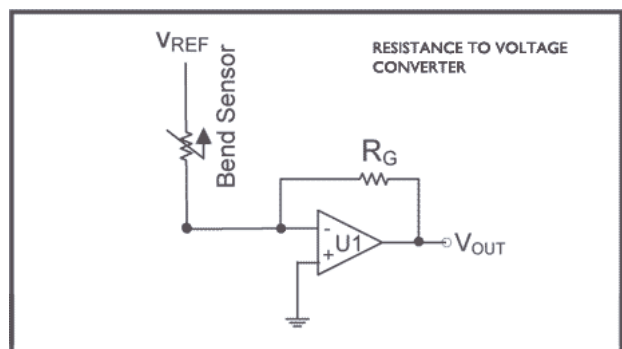
Mouser Electronics

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