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# InFlect™ Flex Sensor

Brewer Science InFlect™ flex sensors utilize our revolutionary carbon-based nanotechnology to deliver a highly sensitive and real-time response to varying angles of deflection.

## BENEFITS

- Increases yield through precise monitoring of equipment position
- Improves air flow monitoring with high-speed detection
- Prevents equipment failure with real-time vibration monitoring
- Easily interfaces to existing electronic systems



## FEATURES

- High sensitivity (900 to 2,600 ppm) change in resistance per degree bend
- Gauge factor >15X that of metal strain gauge
- Bi-directional bend sensitivity
- Ultrafast response time to bend (< 10 ms)
- >98% linear change in resistance vs. bend angle from +180° to -180°
- Wide operating voltage range (4 mV to 50 V)

## APPLICATIONS

- Robotics and automation
- Flow monitoring
- Manufacturing
- Vibration sensing
- Structural health monitoring, including MEMS devices/structures
- IoT/wearables

## SPECIFICATIONS

The specifications are for standard flex sensors. The dimension, form factor, and performance specifications can be customized to meet application requirements.

Parameter	Performance	Unit
Flat resistance value (25°C)	30,000 to 55,000*	Ω
Resistance tolerance	±20	%
Bend sensitivity	900 to 2,600*	ppm/°bend
Bend relaxation (-180° to 180°)	0.3 to 1.3*	%
Temperature sensitivity (20°C to 100°C)	300 to 550*	ppm
TCR Ratio	3.00 to 4.73*	%
Moisture sensitivity (25% to 85% RH, 25°C)	0.009 to 0.02*	% Δ Ω / % Δ RH
Lifetime (± 30° bend)	> 1 million	cycles
Operating temperature	-20 to 85	°C
Operating humidity	0 to 85	% RH

\*Performance specification varies based on application requirement

## FLEX SENSOR DIMENSIONS

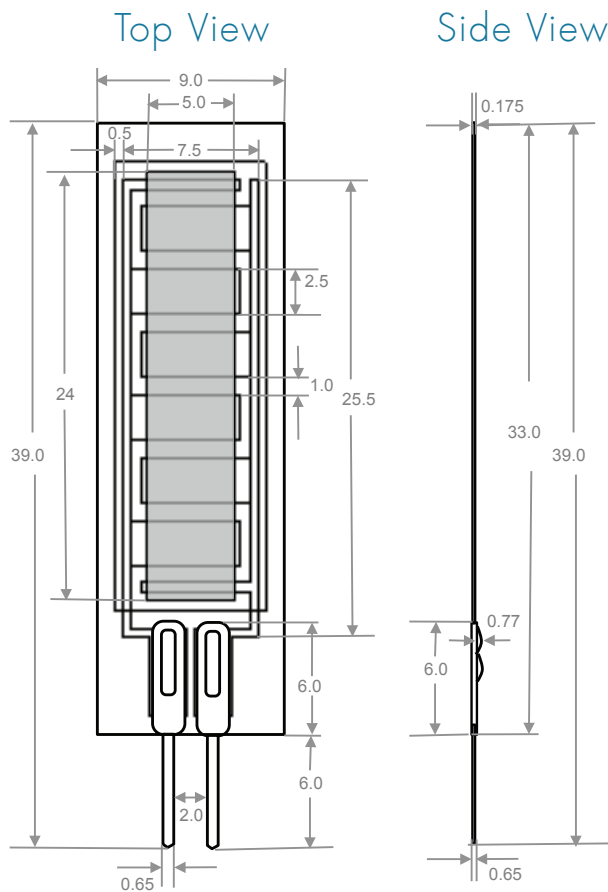


Figure: A schematic of an InFlect™ flex sensor in millimeters.

Parameter	Specification
Sensor dimension	9 x 39 mm
Sensing region dimension	5 x 22 mm
Weight including connecting pins	160 mg
Weight without connecting pins	80 mg
Storage temperature	10-35°C
Storage conditions	10-55% RH
Shelf life	> 12 months

### Mounting and Electrical

- The flex sensor comes with 0.1" (2.54 mm) pitch crimp pin connection system
- The flex sensor is available in FFC connection type for slide-in connection.
- Maximum supply voltage = 50 V
- Maximum power dissipation (5V, 25°C) = 250  $\mu$ W

## FLEX SENSOR OUTPUT CHARACTERISTICS

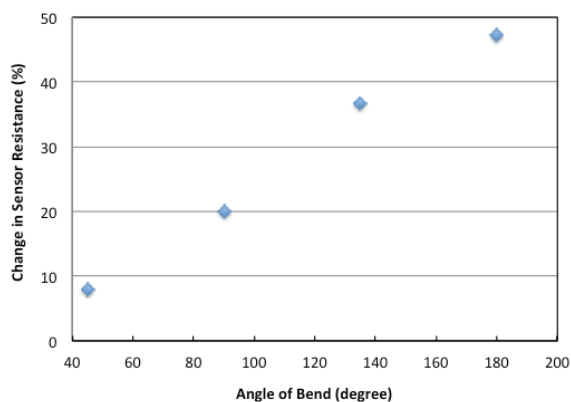


Figure: Sensor resistance output vs. angular bend of sensor

## SENSOR CUSTOMIZATION

- Dimensions and form factor of the sensors can be customized to meet application requirements.
- Sensors can be fabricated on a large variety of substrates depending upon the application requirements.

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