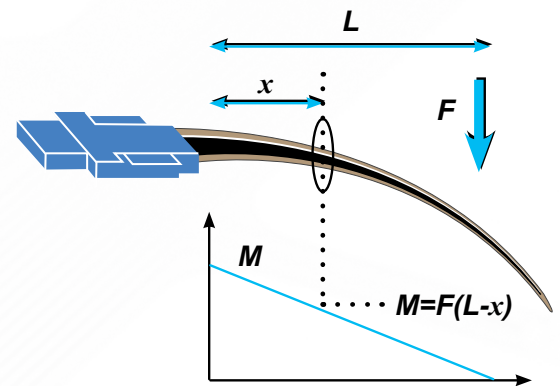


# FLEX SENSOR



**Tactilus® Flex** is a thin resistive sensor that produces an output based on the degree that the sensor is bent.

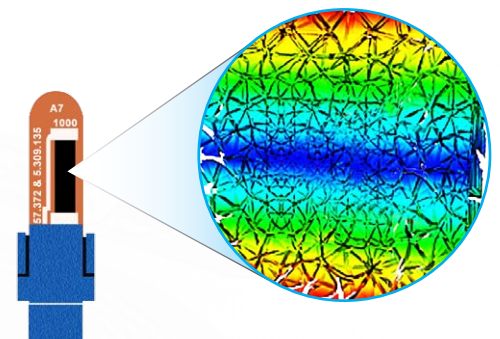
Tactilus® Flex is ideal for any application or device that **requires the measurement of a repetitive bending, striking deflection, acceleration or range of motion.** Additionally, Tactilus® Flex is proven for high speed impact measurements.



The Tactilus® Flex sensor captures a bending moment and produces a signal proportional to that bend.

## Benefits over other technologies

- ▶ Lightweight, thin and low profile
- ▶ A fraction of the price of conventional actuators
- ▶ Non mechanical. Solid state
- ▶ Extraordinarily durable (>35 million cycles)



A series of stress fractures purposefully introduced, conditions the sensor element to react to moments of bending or impact unlike any other sensor.

# The Technology

The **Tactilus® Flex** sensor is based upon a screen printed resistive ink thin films sensors with introduced stress fractures and voids of uniform dimension and known characteristics. Through this patented fretting process Tactilus® Flex derives its unique characteristic of being able to repeatedly indicate the degree of a bending moment. Other sensors are sometimes capable of indicating when they are bent, but none of them are specifically designed for this purpose and they fail to be repeatable or accurate.

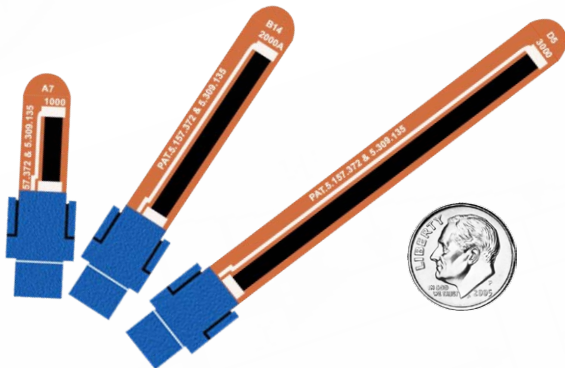
## COMMON APPLICATIONS INCLUDE

- Human body interface, biomechanics, ergonomic research
- Air / fluid flow
- Industrial controls
- Consumer / industrial products

Tactilus® Flex is designed to be integrated into either your existing feedback and control system or connected directly to a multimeter or oscilloscope. Specific interfacing instructions can be supplied.

## Construction

Each Tactilus® Flex sensor element is sequentially serialized and quality tested to ensure the highest repeatability and freedom from defects. In addition, our sensor assemblies feature ergonomic and high quality Berg connectors, ensuring durable interconnection.



Tactilus® Flex sensors can be made in a variety of shapes and sizes

A movement  
or vector  
of **90°**  
can yield  
**a resolution**  
of over  
**200,000 ticks!\***

## Our Capabilities

We will design and build bend sensors to your exact specifications of gauge, dimensions, sensitivity, connector interface and environmental immunity. We perform all elements of R&D and prototyping and are equipped to build our bend sensor into your supplied CAD drawings.

## SPECIFICATIONS

Min and max bend	180°
Query speed	< 1 MHz
Durability	> 35 million cycles (0.24" (6 mm) radius 90° bend)
Material	Polyimide or Polyester films
Temperature range	-76°F to +221°F (-60°C to +105°C)
Gauge	0.003" to 0.01" (0.076 mm to 0.254 mm)
Principle of leave	Resistive ink with introduced micro fractures
Voltage	3 VDC to 12 VDC
Accuracy	±1°
Repeatability	±3%*
Hysteresis	7%
Non-linearity	±3% (subject to test conditions)

\* Experiment performed by bending sensor over a 3" (75mm) diameter cylinder. Sensitivity can be enhanced if necessary.

\* Repeatability test set up with multiple sensors held straight and tangent to a 1.8" (30mm) diameter mandrel using light spring tension. The mandrel was then rotated until the sensor was fully involved around the mandrel and then unwound back to the flat state. Amount of change and rate of change were then compared.

TACTILE PRESSURE EXPERTS



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Tactilus® Flex is protected under patents 5,157,372 & 5,309,135