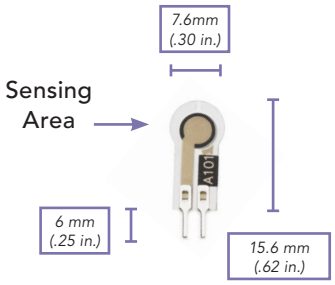
Tekscan®

FlexiForce®
Standard Model A101

Actual size of sensor



The FlexiForce A101 is our smallest standard piezoresistive force sensor. The A101 design is optimized for high volume manufacturing and is ideal for embedding into products and applications. This sensor is available in low and high quantities off-the-shelf, ideal for an easy proof of concept. The A101 sensor is designed to use with your own electronics or multimeter.

BENEFITS

- Small size is ideal for prototyping and integration
- Thin and flexible
- Easy to use

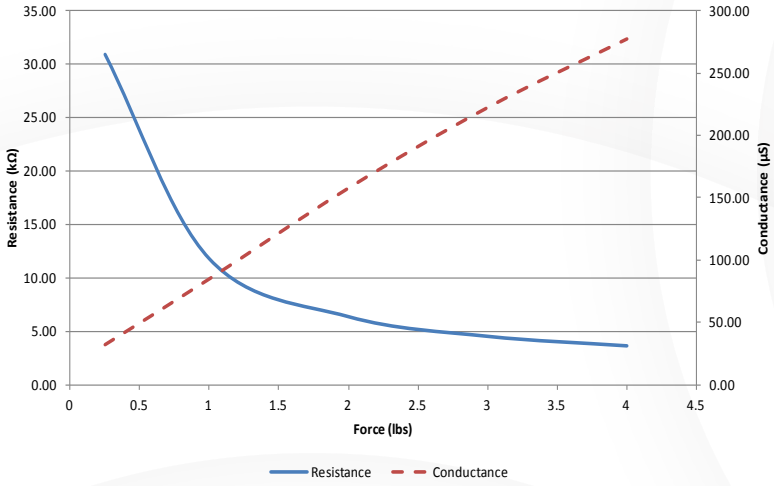
PHYSICAL PROPERTIES

Thickness	0.203 mm (0.008 in.)
Length	15.6 mm (.62 in.)*
Width	7.6 mm (0.30 in.)
Sensing Area	3.8 mm (0.15 in.) diameter
Connector	2-pin Male Square Pin
Substrate	Polyester (ex: Mylar)
Pin Spacing	2.54 mm (0.1 in.)

✓ROHS COMPLIANT

** Length does not include pins, please add approximately 6mm (0.25 in.) for pin length for a total length of approximately 32 mm (1.25 in).*

Typical Performance



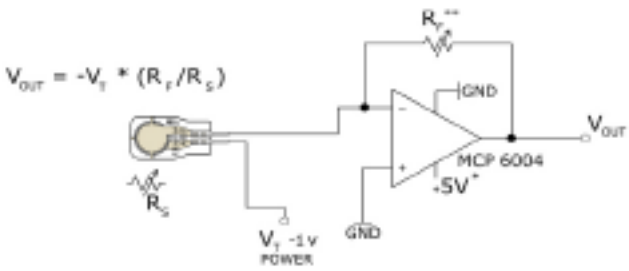
Voltage (V)	Force (lbs)	Resistance (kΩ)	Conductance (µS)
0.5	0.25	30.85	32.41
0.5	1	11.73	85.20
0.5	2	6.33	158.00
0.5	3	4.49	222.59
0.5	4	3.60	277.53

- Sensor resistance measured 20 seconds after applied load
- Sensor loaded through a polycarbonate puck equal to 68% (0.0123in2) of total active area
- Sensor was not attached to any drive circuitry

In order to measure higher forces, apply a lower drive voltage (-0.5 V, -0.10 V, etc.) and reduce the resistance of the feedback resistor (1kΩ min.) To measure lower forces, apply a higher drive voltage and increase the resistance of the feedback resistor.

Sensor output is a function of many variables, including interface materials. Therefore, Tekscan recommends the user calibrate each sensor for the application.

Recommended Circuit



- * Supply Voltages should be constant
- ** Reference Resistance R_F is 1kΩ to 100kΩ
- Sensor Resistance R_S at no load is >5MΩ
- Max recommended current is 2.5mA

	Typical Performance	Evaluation Conditions
Linearity (Error)	< ±3%	Line drawn from 0 to 50% load
Repeatability	< ±2.5% of full scale	Conditioned sensor, 80% of full force applied
Hysteresis	< 4.5 % of full scale	Conditioned sensor, 80% of full force applied
Drift	< 5% per logarithmic time scale	Constant load of 111 N (25 lb)
Response Time	< 5µsec	Impact load, output recorded on oscilloscope
Operating Temperature	-40°C - 60°C (-40°F - 140°F)	Time required for the sensor to respond to an input force

- Force reading change per degree of temperature change = 0.36%/°C (±0.2%/°F)