



# FlexiForce<sup>®</sup>

## Standard Model A401

The FlexiForce A401 is our standard piezoresistive force sensor with the largest sensing area. It is available off-the-shelf for easy proof of concept and is also available in large volumes for design-in applications. The A401 sensor has a 2-pin connector and is designed to use with your own electronics or multimeter.

### BENEFITS

- Thin and flexible
- Easy to use
- Convenient and affordable

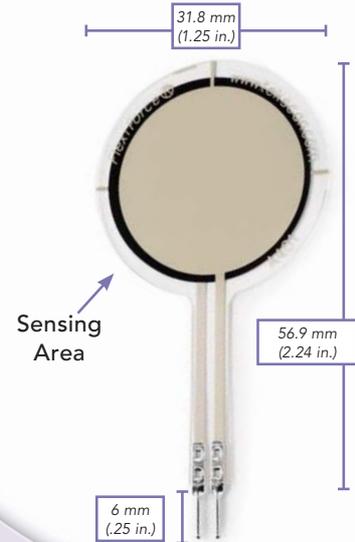
### PHYSICAL PROPERTIES

Thickness	0.203 mm (0.008 in.)
Length	56.9 mm (2.24 in.)*
Width	31.8 mm (1.25 in.)
Sensing Area	25.4 mm (1 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 64 mm (2.5 in).

### Actual size of sensor



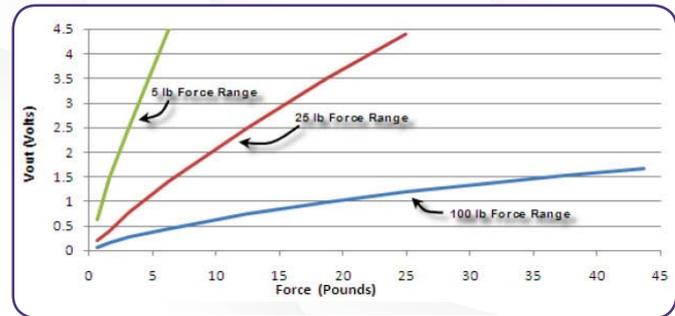
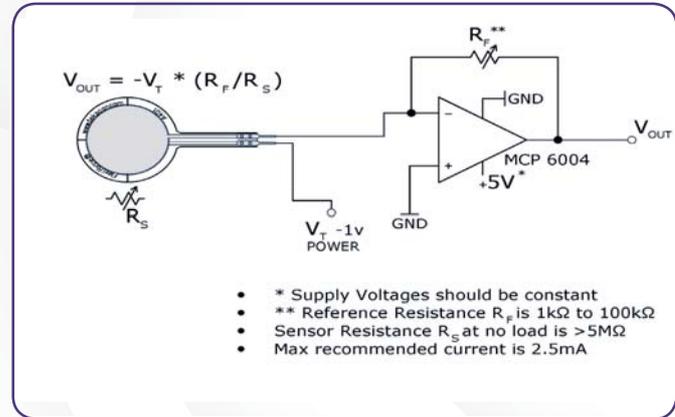
## STANDARD FORCE RANGES (as tested with circuit shown below)

111 N (0 - 25 lb)

Measurement ranges of 0-1 lb and 0-7000 lb are achievable with the A401 sensor by utilizing the recommended circuitry. The force range can be extended by reducing the drive voltage,  $V_T$ , or the resistance value of the feedback resistor,  $R_F$ . Conversely, the sensitivity can be increased for measurement of lower forces by increasing  $V_T$  or  $R_F$ .

Sensor output is a function of many variables, including interface materials. Therefore, Tekscan recommends the user calibrate each sensor for the application. The graph below is an illustration of how a sensor can be used to measure varying force ranges by changing the feedback resistor (the graph below should not be used as a calibration chart).

### Recommended Circuit



	Typical Performance	Evaluation Conditions
Linearity (Error)	< $\pm 3\%$	Line drawn from 0 to 50% load
Repeatability	< $\pm 2.5\%$ 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	< 5 $\mu$ sec	Impact load, output recorded on oscilloscope
Operating Temperature	-40 $^{\circ}$ C - 60 $^{\circ}$ C (-40 $^{\circ}$ F - 140 $^{\circ}$ F)	Time required for the sensor to respond to an input force

- Force reading change per degree of temperature change = 0.36%/ $^{\circ}$ C ( $\pm 0.2\%/^{\circ}$ F)