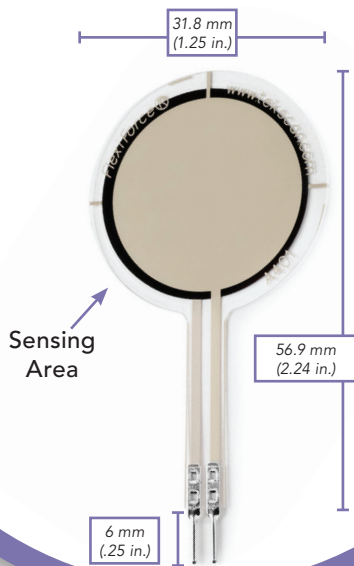


Actual size of sensor



FlexiForce™

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 can be used with our test & measurement, prototyping, and embedding electronics, including the OEM Development Kit, FlexiForce Quickstart Board, and the ELF™ System*. You can also use your own electronics, or multimeter.



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
Pin Spacing	2.54 mm (0.1 in.)

Benefits

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

✓ ROHS COMPLIANT

* Sensor will require an adapter/extender to connect to the ELF System. Contact your Tekscan representative for assistance.

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

Standard Force Ranges as Tested with Circuit Shown

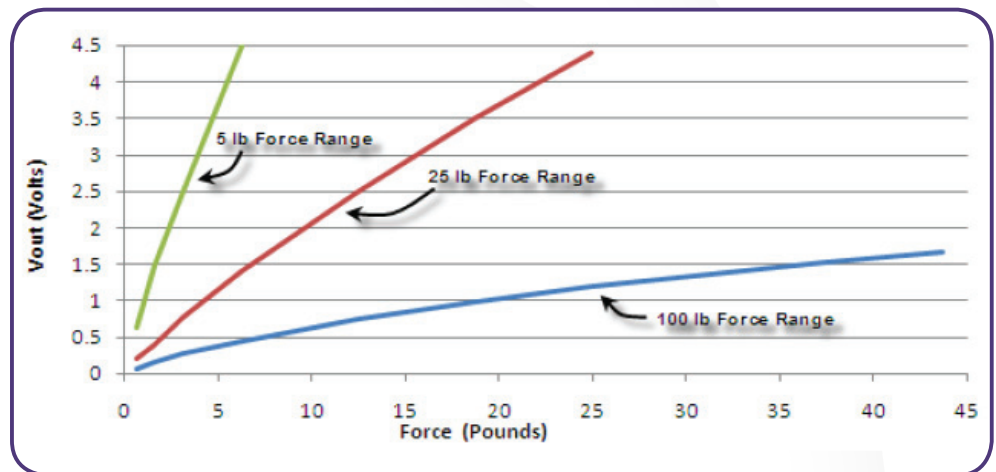
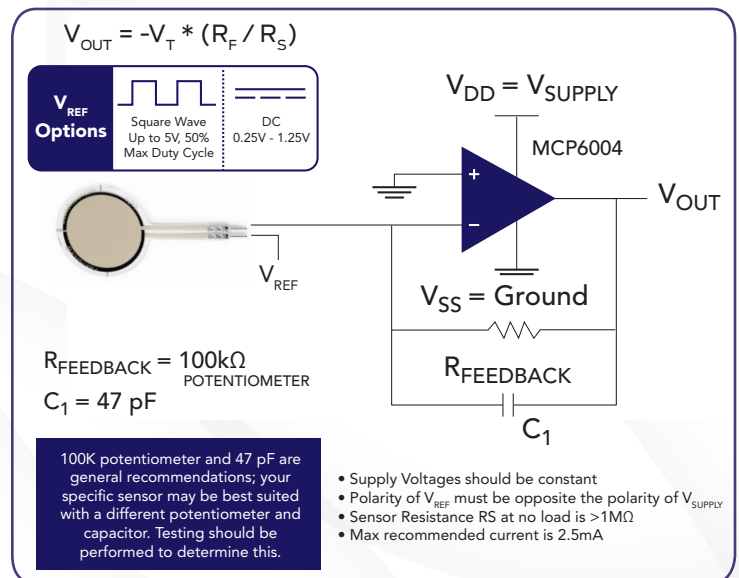
111 N (0 - 25 lb)

31,138 N (0 - 7,000 lb)

Measurement ranges of 0-1 lb and 0-7,000 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-right is an illustration of how a sensor can be used to measure varying force ranges by changing the feedback resistor (the graph below-right should not be used as a calibration chart).

Recommended Circuit



	Typical Performance	Evaluation Conditions
Linearity (Error)	$< \pm 3\%$ of full scale	Line drawn from 0 to 50% load
Repeatability	$< \pm 2.5\%$	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	$< 5\mu\text{sec}$	Impact load, output recorded on oscilloscope
Operating Temperature	$-40^\circ\text{C} - 60^\circ\text{C}$ ($-40^\circ\text{F} - 140^\circ\text{F}$)	Convection and conduction heat sources

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



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