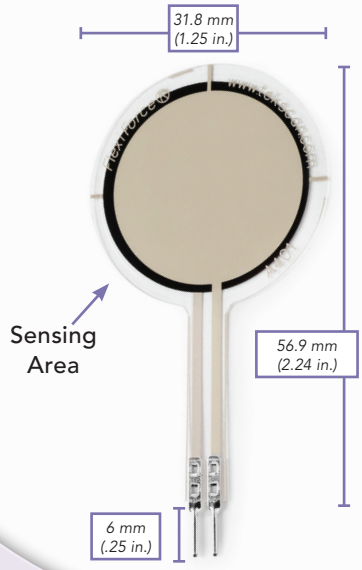
Tekscan™

FlexiForce™

Standard Model A401

Actual size of sensor



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.

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
Pin Spacing	2.54 mm (0.1 in.)

✓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)

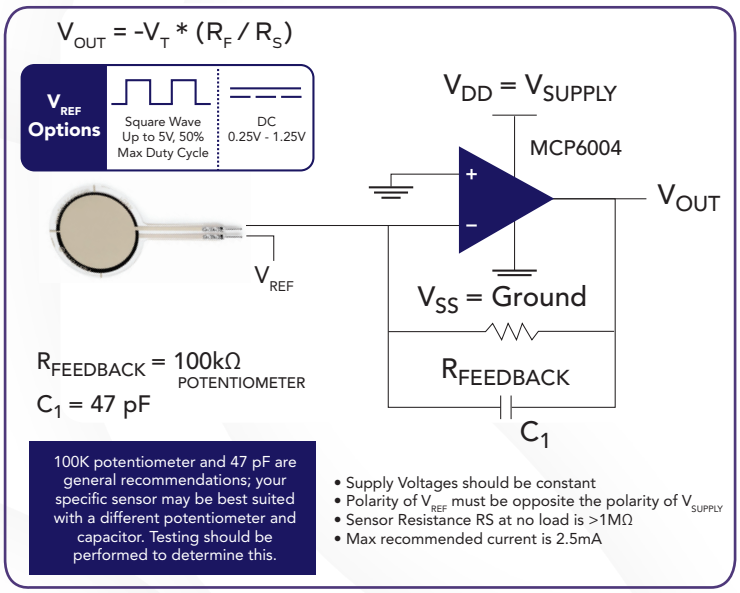
111 N (0 - 25 lb)

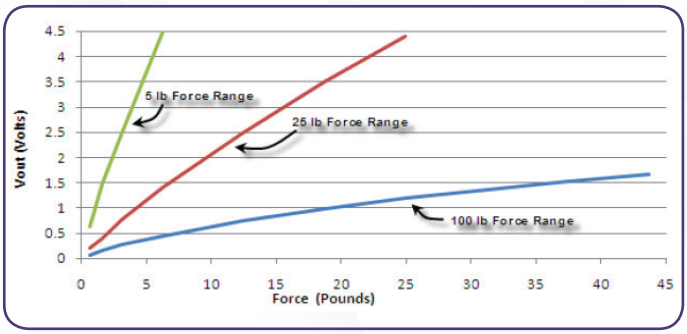
31,138 N (0 - 7,000 lb)

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, VT, or the resistance value of the feedback resistor, RF. Conversely, the sensitivity can be increased for measurement of lower forces by increasing VT or RF.

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)	< ±3% of full scale	Line drawn from 0 to 50% load
Repeatability	< ±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	< 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)

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