



The FlexiForce A201 is a piezoresistive force sensor engineered for measuring forces between two mating surfaces with ease. Its ultra-thin, flexible design and multiple length options make it an ideal choice for applications requiring non-intrusive, reliable force measurement. Whether you're testing, prototyping, conducting research, or exploring proof-of-concept designs, the A201 delivers consistent results in tight spaces. Compatible with Tekscan electronics- including the FlexiForce Sensor Characterization Kit and the ELF System*- or your own setups, including multimeters, this sensor adapts to your needs with ease.

Benefits

- **Thin and Flexible**
Easily integrates into tight spaces for non-intrusive force measurement between mating surfaces.
- **Easy to Use**
Compatible with a variety of electronics and ready-to-use for testing, prototyping, or embedding.
- **Convenient and Cost-Effective**
Off-the-shelf availability, customizable options, and consistent performance reduce development time and costs.

Physical Properties

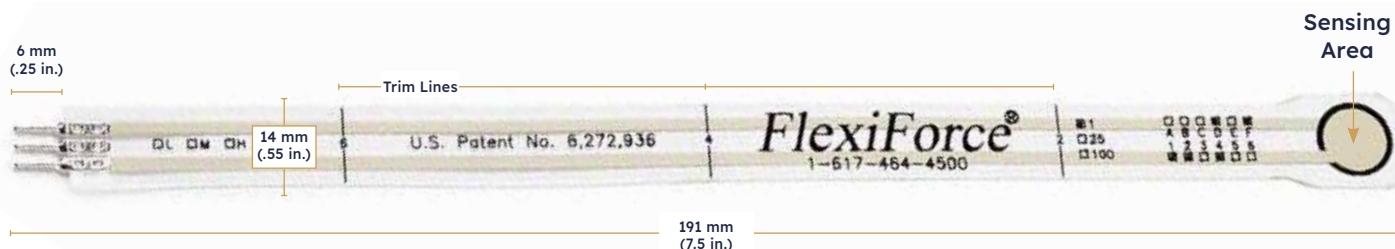
Thickness	0.203 mm (0.008 in.)	Sensing Area	9.53 mm (0.375 in.) diameter
Length	191 mm (7.5 in.)** Optional trimmed lengths: 152 mm (6 in.), 102 mm (4 in.), 51 mm (2 in.)	Connector	3-pin Male Square Pin (center pin is inactive)
Width	14 mm (0.55 in.)	Substrate	Polyester
		Pin Spacing	2.54 mm (0.1 in.)

- * 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 197 mm (7.75 in.).

	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)	Convection and conduction heat sources
Durability	≥ 3 million actuations	Perpendicular load, room temperature, 22 N (5 lb)
Temperature Sensitivity	0.36%/°C (± 0.2%/°F)	Conductive heating

All data above was collected utilizing an Op Amp Circuit (shown on the next page).
 If your application cannot allow an Op Amp Circuit, visit www.tekscan.com/flexiforce-integration-guides,
 or contact a FlexiForce Applications Engineer.

Sensor Measurements



Standard Force Ranges as Tested with Inverting Op-Amp Circuit

4.4 N (0 - 1 lb)

111 N (0 - 25 lb)

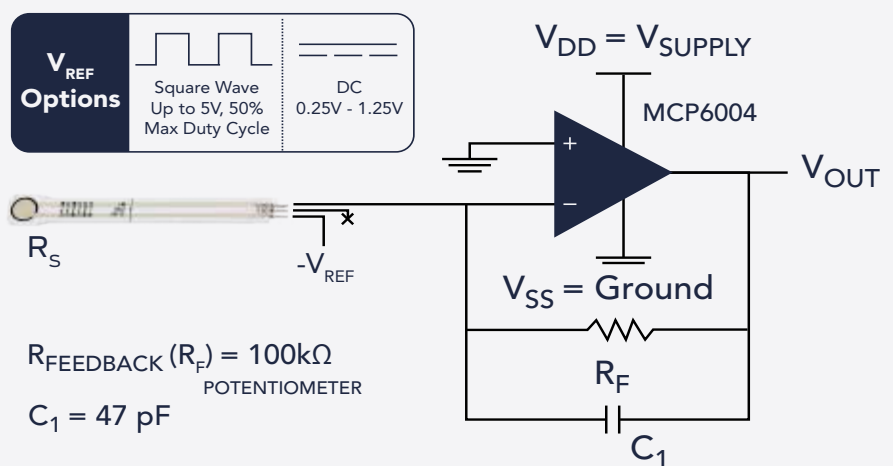
445 N (0 - 100 lb) [†]

[†]This sensor can measure up to 4,448 N (1,000 lb). To measure higher forces, apply a lower drive voltage (-0.5 V, -0.25 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. Calibration is recommended. See [FlexiForce Best Practices](#) for details.

Recommended Circuit

$$V_{OUT} = -V_{REF} * (R_F / R_S)$$



$R_{FEEDBACK} (R_F) = 100\text{k}\Omega$
POTENTIOMETER
 $C_1 = 47 \text{ pF}$

100K potentiometer and 47 pF are general recommendations; your specific sensor may be best suited with a different potentiometer and capacitor. Testing should be performed to determine this.

- Polarity of V_{REF} must be opposite the polarity of V_{SUPPLY}
- Sensor Resistance R_S at no load is typically $>1\text{M}\Omega$
- Max recommended current is 2.5mA

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