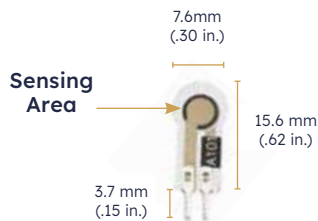


Actual size of sensor



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 off-the-shelf for easy proof of concept. The A101 can be used with our test & measurement, prototyping, and embedding electronics, including the FlexiForce Sensor Characterization Kit, FlexiForce Prototyping Kit, FlexiForce Quickstart Board, and the ELF™ System*. You can also use your own electronics, or multimeter.

Benefits

- **Small size is ideal for prototyping and integration**
- **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.

Physical Properties

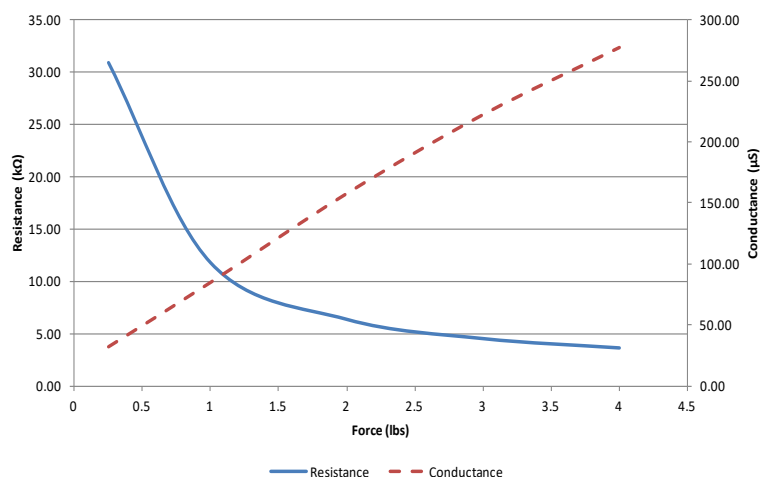
Thickness	0.203 mm (0.008 in.)	Connector	2-pin Male Square Pin
Length	15.6 mm (.62 in.)**	Substrate	Polyester
Width	7.6 mm (0.30 in.)	Pin Spacing	2.54 mm (0.1 in.)
Sensing Area	3.8 mm (0.15 in.) diameter		

- * Sensor will require an adapter/extender to connect to the FlexiForce Sensor Characterization Kit, FlexiForce Prototyping Kit, and ELF Systems. Contact your Tekscan representative for assistance.
 ** Length does not include pins. Please add approximately 3.7 mm (0.15 in.) for pin length for a total length of approximately 19.3 mm (0.75 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.

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 acceptance criteria $\pm 40\%$ of nominal
- Sensor resistance measured 20 seconds after applied load
- Sensor loaded through a polycarbonate puck equal to 68% (0.0123 in²) of total active area
- Sensor was not attached to any drive circuitry

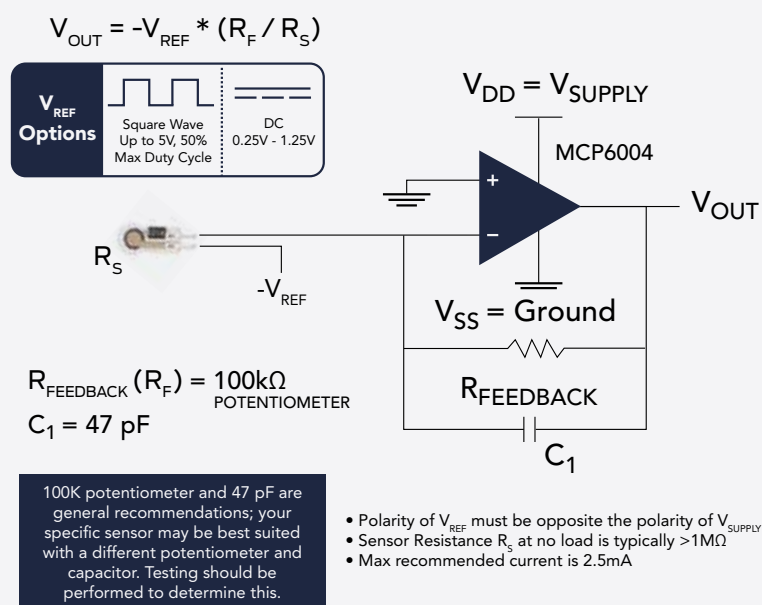
Standard Force Ranges as Tested with Inverting Op-Amp Circuit

18 N (0 - 4 lb)[†]

[†]This sensor can measure up to 44 N (10 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



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