

Benefits

- Thin and flexible
- Low-power
- Ideal for prototyping & integration
- Easy to use



- 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 87 mm (3.4 in).

	Typical Performance	Evaluation Conditions	
Linearity (Error)	$< \pm 3\%$ of full scale	Line drawn from 0 to 50% load	
Repeatability	< ±2.5% Conditioned sensor, 80% of full force a		
Hysteresis	< 4.5% of full scale	1.5% 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	\geq 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 <u>www.tekscan.com/flexiforce-integration-guides</u>, or contact a FlexiForce Applications Engineer.



FlexiForceTM

Standard Model A502

The FlexiForce[™] A502 is a square sensor, with a sensing area measuring 50.8 mm x 50.8 mm (2 in. x 2 in.). This sensor is available off-theshelf for easy proof of concept. The A502 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.

Physical Properties

Thickness	0.203 mm (0.008 in.)	
Length	81.3 mm (3.20 in.)**	
Width	55.9 mm (2.20 in.)	
Sensing Area	50.8 mm x 50.8 mm (2 in. x 2 in.)	
Connector	2-pin Male Square Pin	
Substrate	Polyester	
Pin Spacing	2.54 mm (0.1 in.)	

Typical Performance



Voltage (V)	Force (lbs)	Resistance (kΩ)	Conductance (µS)
0.5	20	34.36	29.11
0.5	40	17.14	58.33
0.5	60	11.57	86.41
0.5	80	8.71	114.76
0.5	100	6.97	143.54

- Sensor acceptance criteria ±40% of nominal
- Sensor resistance measured 20 seconds after applied load
- Sensor loaded through a polycarbonate puck equal to 68% (2.72 in²) of total active area
- Sensor was not attached to any drive circuitry

Standard Force Ranges as Tested with Circuit Shown 222 N (0 - 50 lb) † [†] **This sensor can measure up to 44,448 N (10,000 lb)**. In order 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. Therefore, Tekscan recommends the user calibrate each sensor for the application.



Recommended Circuit

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