

accurate
reliable
ultra-thin
flexible
non-intrusive
durable
customizable
cost-effective
force & load
sensing

FlexiForce: (Noun)

Pronunciation: flex'ē'fōrs

1. a: a versatile, durable piezoresistive force sensor that can be made in a variety of shapes and sizes; b: a piezoresistive sensing device in which resistance is inversely proportional to applied force;
2. a customizable, economical force measurement tool that is easily integrated into OEM products;
3. a: a patented, ultra-thin (0.008"), flexible printed circuit that senses contact force; b: a force and load sensor that is available in three standard force ranges, suiting a variety of applications for research and product development/testing.

FlexiForce®
The Leader in Standard & Custom
OEM Force Sensing Solutions



Providing you with the right force sensing solution.

FlexiForce[®], a division of Tekscan, is committed to providing the most advanced, thin, tactile force and pressure sensors in the world. These sensors are accurate, simple to use, and cost-effective. Our knowledgeable, experienced staff works with companies of all sizes to deliver standard and custom sensing solutions for a wide variety of OEM products and applications. We dedicate ourselves to identifying and meeting our customers' needs by producing sensing solutions of the highest quality and value.

The smart sensing solution

Applications:

Medical Equipment Manufacturers

- Drug delivery systems
- Surgical studies & tools
- Diagnostic devices

Automotive Manufacturers

- Braking, impact, vibration
- Occupant detection
- Airbag force on occupant

Recreational/Entertainment Industry

- Video games/virtual reality
- Sports equipment
- Training devices

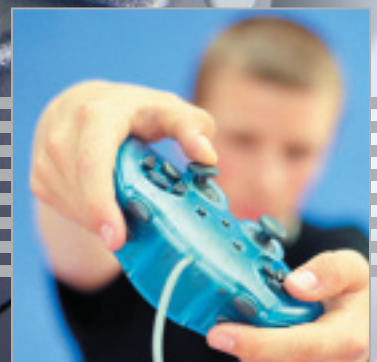
Industrial

- Security devices
- Packaging and sealing
- Automation

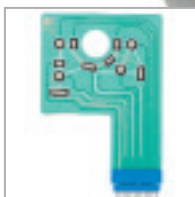
Other Studies

- Grip forces
- Equipment monitoring
- Robotics
- And much more!

The applications are limited only by your imagination!



APPLIANCE



SECURITY DEVICES



COMPUTER INTERFACES



GAMING APPLICATIONS



Serving many applications with proven solutions.

Founded in 1987, Tekscan is the world's leading provider of advanced tactile force and pressure measurement sensors and systems. Tekscan's *FlexiForce* sensors are at work in a variety of applications, performing a multitude of functions. The sensors are utilized to:

- Detect and measure a relative change in force or applied load
- Detect and measure the rate of change in force
- Identify force thresholds and trigger appropriate action
- Detect contact and/or touch

An integral part of your product development.

The *FlexiForce* product line was developed in response to the unique needs of companies that require cost-effective force sensing solutions in their products. We offer standard and custom-designed sensors to satisfy the needs of your application. Our team works closely with you throughout each stage of the design process. This allows you to concentrate on your core business while we work on what we do best: developing the right sensors for you.

Superior sensors plus superior support and service.

We are as proud of our support and service capabilities as we are of our technology. As a customer, you can be confident that our experienced, qualified staff will work with you to define, develop, and integrate a unique sensing solution. The accessibility of our technical support team ensures that any issues you have will be solved promptly and effectively.

Get a better sense of our offerings:

FlexiForce Sensor (A201 - Standard Model)

With its flexible, paper-thin construction, the standard *FlexiForce* sensor can measure force between virtually

any two surfaces. It is also durable enough to stand up to most environments. The highly adaptive A201 model, composed of polyester material and semi-conductive inks, is a piezoresistive sensing device which can be trimmed to various lengths.

FlexiForce Sensor (High-Temp Model)

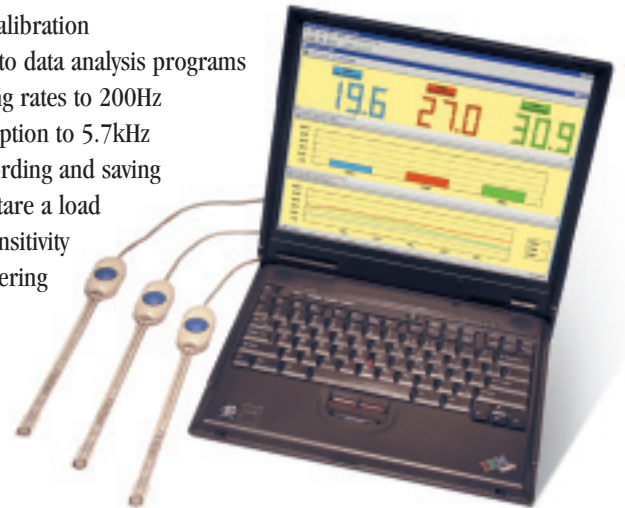
Our new High-Temp *FlexiForce* sensors have been tested up to 420 degrees Fahrenheit, opening up many new doors for a variety of demanding applications.

ELF™ Systems & Sensors

Both the *ELF™* and Multi-Handle *ELF™ (MELF™)* systems combine Tekscan's *FlexiForce* single-element force sensors with advanced electronics to create cost-effective force and load measurement systems that are both simple and powerful. Both systems include Windows®-compatible software, serial-interface electronics, and three *FlexiForce* (model B201) sensors. The *ELF* system allows you to view and record one channel of force data, while the *MELF* System enables you to view and record up to 16 channels of force data with *FlexiForce* single-point sensors.

Key features of the ELF system include:

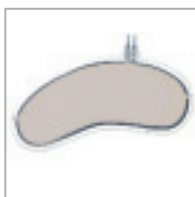
- Real-time data capture/display
- Simple and storable calibration
- Multi-point calibration
- ASCII output to data analysis programs
- Eight sampling rates to 200Hz
- High-speed option to 5.7kHz
- "Movie" recording and saving
- Capability to tare a load
- Adjustable sensitivity
- Internal triggering



PUMP



EXERCISE



IMPACT



AUTO



Standard Sensor Specifications

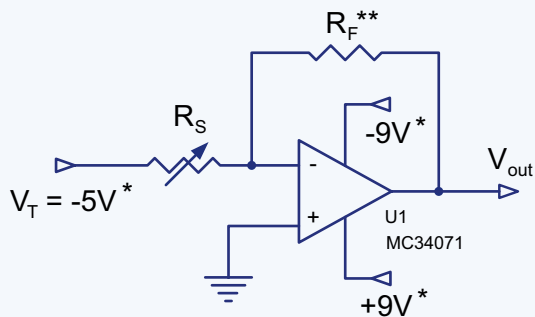
	A201 Model*	B201 Model**
Physical Properties		
Thickness	0.008" (0.208mm)	
Length	≈ 8" (203mm) 6" (152mm) 4" (102mm) 2" (51mm)	9" (229mm) end-to-end
Width	0.55" (14mm)	
Sensing Area	0.375" diameter (9.53mm)	
Connector	3-pin male square pin (Center pin not used)	Interface to <i>ELF</i> Data Acquisition System
Typical Performance		
Linearity (Error)	<+/- 5%	
Repeatability	<+/- 2.5% of full scale (conditioned sensor, 80% force applied)	
Hysteresis	< 4.5% of full scale (conditioned sensor, 80% force applied)	
Drift	< 3% per logarithmic time scale (constant load of 90% sensor rating)	
Response Time	< 5 microseconds (impact load, output recorded on oscilloscope)	
Operating Temperature	15° F to 140° F (-9° C to 60° C) High-Temp sensors: -20° F to 420° F (-28° C to 216° C)	
Force Ranges	0-1 lb. (4.4 N) 0-25 lbs. (110 N) 0-100 lbs. (440 N)*	Low (L) Medium (M) High (H)

* To measure forces above 100 lbs. (up to 1000 lbs.), apply a lower drive voltage and reduce the resistance of the feedback resistor (1 kΩ min). See recommended circuit. ** See recommended maximum force chart.

B201 (*ELF* sensor) Recommended Maximum Force Chart

	High Gain	Low Gain
B201-L	0-1 lb. (4.4 N)	0-25 lbs. (110 N)
B201-M	0-25 lbs. (110 N)	0-150 lbs. (667 N)
B201-H	0-150 lbs. (667 N)	0-1000 lbs. (4400 N)

Typical Drive Circuit for A201 Sensor



- $V_{out} = -V_T^* (R_F/R_S)$
- * Supply Voltages should be consistent
- ** Reference Resistance R_F is 1kΩ to 100kΩ
- Sensor Resistance R_S at no load is > 5MΩ
- Max recommended current: 2.5 mA

A201 Sensor (Actual Size)



**Don't just take
our word for it;
here's what some
of your peers
have to say:**

"Tekscan has provided a terrific product, and service to match, to compliment our product to be at the leading Edge of technology for the trailer braking industry. It has been a pleasure dealing with a company that has customized their product to suit our application."

John Sharp
General Manager
Edge International Ltd.
New Zealand

"We were thrilled to finally discover Tekscan and their FlexiForce sensors."

The reliability of the FlexiForce sensors is superb, and the Tekscan engineers have been a joy to work with. In helping to develop our sensor, the Tekscan engineers were exceptionally professional, accommodating, and friendly. I like these guys! Two thumbs up for Tekscan."

Carl Smith
President
Applied Fitness

"We are thrilled with our decision to work with Tekscan to create a custom sensor for our product. Tekscan's team has been vital to the development of our product by working closely with our engineers to ensure the best sensor design and most effective electronics. They are responsive, knowledgeable, honest, and willing to go the extra mile to get the job done, and done well. Thank you Tekscan, for first-rate service and a superior product."

Andrew Austin
President
Category Solutions

The Bottom Line.

Tekscan works as your partner to develop the optimal force sensing solution for your application or product.

To discuss your specifications or for more information, call 800.248.3669, 617.464.4500 or email marketing@tekscan.com.



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