The FlexiForce A201 is our standard sensor and meets the requirements of most customers. The A201 is a thin and flexible piezoresistive force sensor that is available off-the-shelf in a variety of lengths for easy proof of concept. These ultra-thin sensors are ideal for non-intrusive force and pressure measurement in a variety of applications. The A201 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**: 191 mm (7.5 in.)** (optional trimmed lengths: 152 mm (6 in.), 102 mm (4 in.), 51 mm (2 in.))
- **Width**: 14 mm (0.55 in.)
- **Sensing Area**: 9.53 mm (0.375 in.) diameter
- **Connector**: 3-pin Male Square Pin (center pin is inactive)
- **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**

<table>
<thead>
<tr>
<th></th>
<th>Evaluation Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linearity (Error)</td>
<td>&lt; ±3% of full scale Line drawn from 0 to 50% load</td>
</tr>
<tr>
<td>Repeatability</td>
<td>&lt; ±2.5% Conditioned sensor, 80% of full force applied</td>
</tr>
<tr>
<td>Hysteresis</td>
<td>&lt; 4.5% of full scale Conditioned sensor, 80% of full force applied</td>
</tr>
<tr>
<td>Drift</td>
<td>&lt; 5% per logarithmic time scale Constant load of 111 N (25 lb)</td>
</tr>
<tr>
<td>Response Time</td>
<td>&lt; 5µsec Impact load, output recorded on oscilloscope</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40°C - 60°C (-40°F - 140°F) Convection and conduction heat sources</td>
</tr>
<tr>
<td>Acceptance Criteria</td>
<td>±40% sensor-to-sensor variation Output considered at test pressure</td>
</tr>
<tr>
<td>Durability</td>
<td>≥ 3 million actuations Perpendicular load, room temperature, 22 N (5 lb)</td>
</tr>
<tr>
<td>Temperature Sensitivity</td>
<td>0.36%/°C (± 0.2%/°F) Conductive heating</td>
</tr>
</tbody>
</table>

***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.
Standard Force Ranges as Tested with Circuit Shown

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). 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

\[ V_{OUT} = -V_{REF} \times \left( \frac{R_F}{R_S} \right) \]

- **VOUT** = Voltage output
- **VREF** = Reference voltage
- **R_S** = Sensor resistance
- **R_F** = Feedback resistor
- **C_1** = Capacitor

**VREF Options**
- Square Wave
- Up to 5V, 50% Max Duty Cycle
- DC 0.25V - 1.25V

**Recommended Potentiometer**

100kΩ 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 VREF must be opposite the polarity of VSUPPLY
- Sensor Resistance R_S at no load is typically >1MΩ
- Max recommended current is 2.5mA

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