SingleTact is the most refined miniature force sensor that is performance oriented. Ultra-thin, single-element capacitive sensor with industry-leading sensitivity and repeatability that accurately and reliably quantifies forces.

**Ultra-thin force sensors** come in sizes of 8mm and 15mm diameter that is only 0.35mm thick.

**Highly sensitive and repeatable sensors** provide high dynamic range and errors less than 1.0%.

**Simple Analog 3-wire interface** for immediate DAQ integration.

**I2C interface** for digital integration.

**Arduino and DAQ Software** to begin collecting data right out of the box.

**Custom designed solutions available for OEM applications.**
SENSOR PERFORMANCE

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Force Resolution</td>
<td>&lt; 0.2% of Full Scale (FS)</td>
</tr>
<tr>
<td>Maximum Force</td>
<td>300% of FS</td>
</tr>
<tr>
<td>Typical Repeatability Error</td>
<td>&lt; 1.0% (1 sigma of FS)</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40°C – 200°C</td>
</tr>
<tr>
<td>Temperature Sensitivity</td>
<td>Up to 0.2%/°C</td>
</tr>
<tr>
<td>Linearity Error</td>
<td>&lt; 2.0%</td>
</tr>
<tr>
<td>Drift</td>
<td>&lt; 2% per logarithmic time scale</td>
</tr>
<tr>
<td>Hysteresis</td>
<td>&lt; 4.0%</td>
</tr>
<tr>
<td>Sensor Response Time</td>
<td>&lt; 1ms (Measured using Oscilloscope)</td>
</tr>
<tr>
<td>Contact Surface Material</td>
<td>Polyimide</td>
</tr>
<tr>
<td>Sensor Thickness</td>
<td>0.35mm</td>
</tr>
<tr>
<td>Tail Length</td>
<td>50mm</td>
</tr>
<tr>
<td>Typical Baseline Capacitance</td>
<td>8mm: 75 pF; 15mm : 230 pF @ 100kHz</td>
</tr>
<tr>
<td>Typical Capacitance Change</td>
<td>8mm: 2.2 pF; 15mm : 5.5 pF @ 100kHz</td>
</tr>
<tr>
<td>ESD Sensitivity</td>
<td>Not sensitive to ESD</td>
</tr>
<tr>
<td>Material Grade</td>
<td>UL grade 94 V-1 or better</td>
</tr>
</tbody>
</table>

SENSOR CHARACTERISTICS
PINOUTS DIAGRAM FOR SENSOR & I2C BOARD

1. GND
2. GND (Both GNDs must be connected)
3. Sense

1. Vcc (3.7V to 12V)
2. Analog output (2V swing, 0.5 to 1.5V = full scale range)
3. I2C interface (SCL)
4. Programming (Data)
5. Programming (Clock)
6. I2C interface (SDA)
7. Frame Sync (pulse for each new measurement)
8. Ground

ELECTRONICS SPECIFICATIONS

Update Rate >100 Hz
Analog Out 0.5–1.5V
Digital Interface I2C (100kHz), 10-bit resolution
IO Voltage 3.3V
Supply Voltage 3.7-12V
Input Current 2.5mA running at 3MHz
Weight Sensor 0.23g/ Electronics 1.6g
RoHS Compliant
Operating Temperature -40°C – 85°C

SOFTWARE

Download SingleTact Software
www.singletact.com/software-download
SENSOR MECHANICAL SPEC-15mm

SENSORS
S15-4.5N
+Full scale Range: 0.45kg (1.0lbs)
+Minimal Detectable Force: 0.9g

S15-45N
+Full scale Range: 4.5kg (10lbs)
+Minimal Detectable Force: 9g

S15-450N
+Full scale Range: 45kg (100lbs)
+Minimal Detectable Force: 90g

CABIBRATED SENSORS
CS15-4.5N
+Full scale Range: 0.45kg (1.0lbs)
+Minimal Detectable Force: 0.9g

CS15-45N
+Full scale Range: 4.5kg (10lbs)
+Minimal Detectable Force: 9g

CS15-450N
+Full scale Range: 45kg (100lbs)
+Minimal Detectable Force: 90g

EXPLODED VIEW

ADHESIVE
TOP ELECTRODE
SENSOR DIELECTRIC
BOTTOM ELECTRODE
STIFFENER

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SENSOR MECHANICAL SPEC-8mm

SENSORS
S8-1N
+Full scale Range: 100g (0.22lbs)
+Minimal Detectable Force: 0.2g

S8-10N
+Full scale Range: 1.0kg (2.2lbs)
+Minimal Detectable Force: 2g

S8-100N
+Full scale Range: 10kg (22lbs)
+Minimal Detectable Force: 20g

CABIBRATED SENSORS
CS8-1N
+Full scale Range: 100g (0.22lbs)
+Minimal Detectable Force: 0.2g

CS8-10N
+Full scale Range: 1.0kg (2.2lbs)
+Minimal Detectable Force: 2g

CS8-100N
+Full scale Range: 10kg (22lbs)
+Minimal Detectable Force: 20g

EXPLODED VIEW

ADHESIVE
SENSOR DIELECTRIC
TOP ELECTRODE
BOTTOM ELECTRODE
STIFFENER