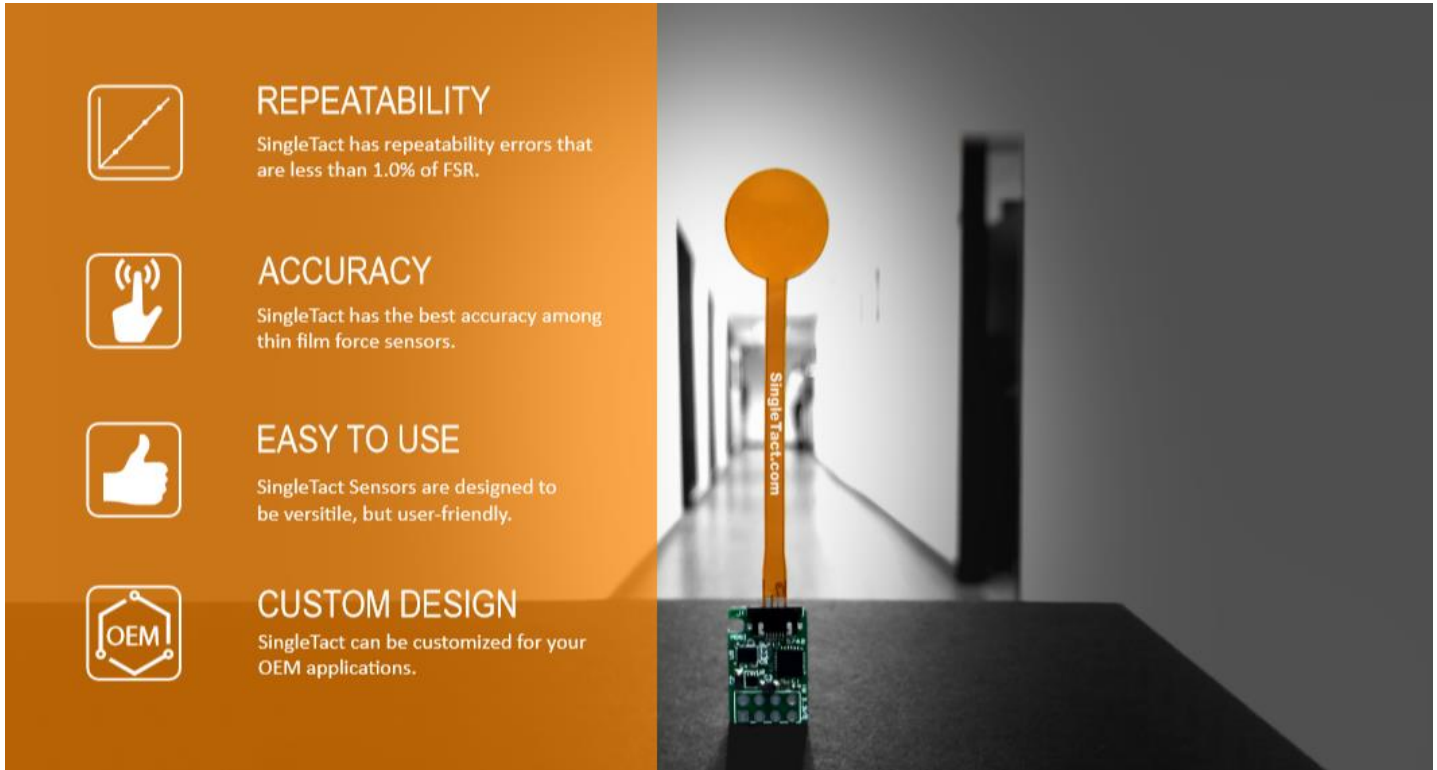


SingleTact capacitive force sensing technology delivers superior sensitivity and repeatability than resistive sensors. They provide truly incredible performance, especially considering that they are only 0.3 mm thick.

A composite image showing four feature icons on an orange background and a photograph of a sensor. The icons are: a graph for 'REPEATABILITY', a hand with a signal for 'ACCURACY', a thumbs up for 'EASY TO USE', and an OEM logo for 'CUSTOM DESIGN'. The photograph shows a green PCB with a sensor chip, a thin orange stem with 'SingleTact.com' printed on it, and a large orange circular cap, all on a dark surface with a hallway in the background.

**REPEATABILITY**  
SingleTact has repeatability errors that are less than 1.0% of FSR.

**ACCURACY**  
SingleTact has the best accuracy among thin film force sensors.

**EASY TO USE**  
SingleTact Sensors are designed to be versatile, but user-friendly.

**CUSTOM DESIGN**  
SingleTact can be customized for your OEM applications.

## SingleTact FEATURES

**Ultra-thin force sensors** come in sizes of 8 mm and 15 mm diameter, at only 0.3 mm 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.**

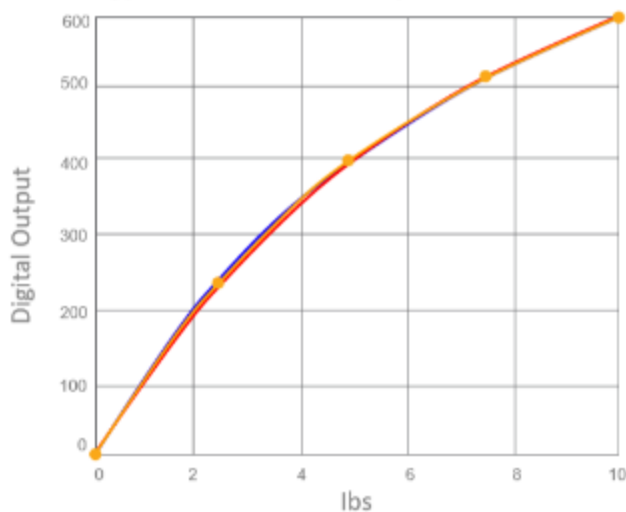


## SENSOR PERFORMANCE

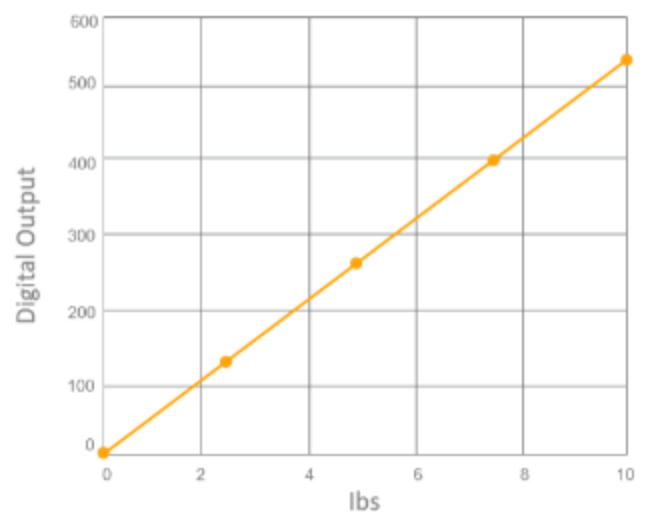
Force Resolution	< 0.2% of Full-Scale Range (FSR)
Maximum Force	300% of FSR
Typical Repeatability Error	< 1.0% (1 sigma of FSR)
Operating Temperature	-40 °C < T < 85 °C
Temperature Sensitivity	< 0.2%/°C
Linearity Error	< 2.0%
Drift	2% in 1 min, 4% in 10 min; at 50% FSR load
Hysteresis	< 4.0%
Sensor Response Time	< 1ms
Contact Surface Material	Polyimide
Typical Baseline Capacitance	8 mm: 75 pF; 15 mm: 230 pF @ 100 kHz
Typical Capacitance Change	8 mm: 2.2 pF; 15 mm: 5.5 pF @ 100 kHz
ESD Sensitivity	Not sensitive to ESD
Material Grade	UL grade 94 V-1 or better

## SENSOR CHARACTERISTICS

Typical Uncalibrated Output

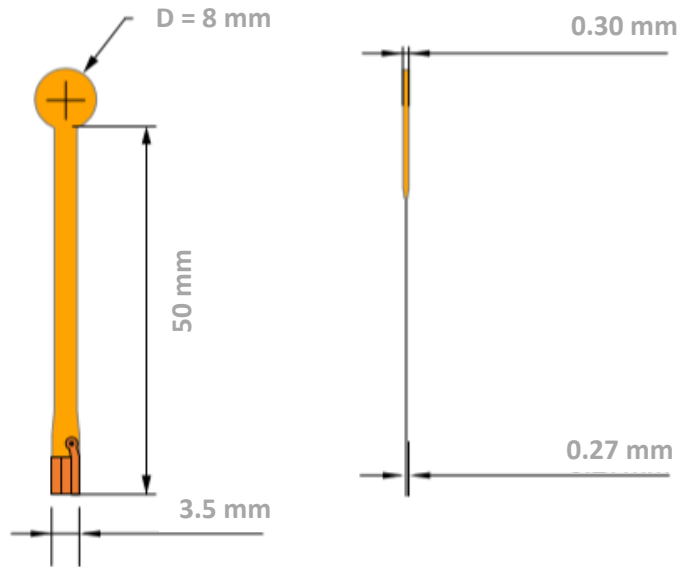


Typical Calibrated Output





## SENSOR MECHANICAL SPECIFICATIONS – 8MM DIAMETER



### SENSORS

#### S8-1N

+Full Scale Range: 100 g (0.22 lbs)  
+Minimal Detectable Force: 0.2 g

#### S8-10N

+Full Scale Range: 1.0 kg (2.2 lbs)  
+Minimal Detectable Force: 2 g

#### S8-100N

+Full Scale Range: 10 kg (22 lbs)  
+Minimal Detectable Force: 20 g

### CALIBRATED SENSORS

#### CS8-1N

+Full Scale Range: 100 g (0.22 lbs)  
+Minimal Detectable Force: 0.2 g

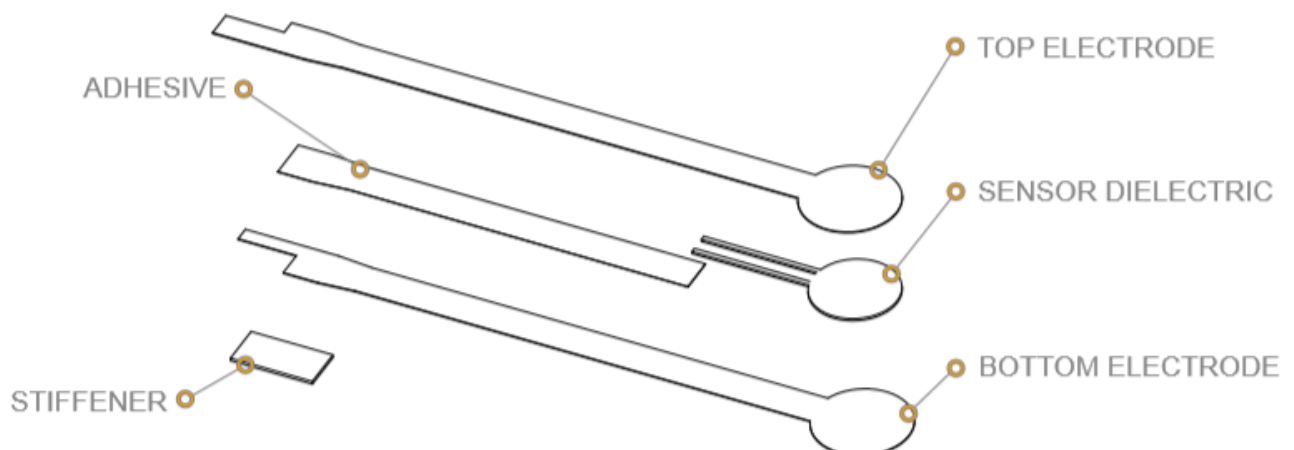
#### CS8-10N

+Full Scale Range: 1.0 kg (2.2 lbs)  
+Minimal Detectable Force: 2 g

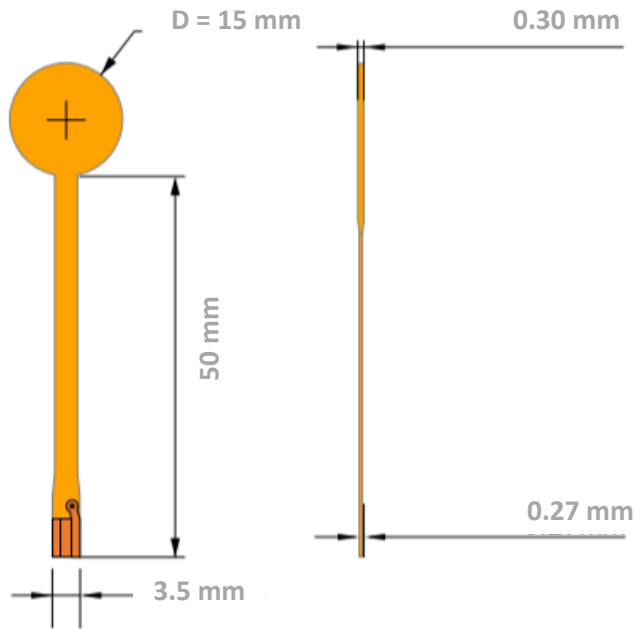
#### CS8-100N

+Full Scale Range: 10 kg (22 lbs)  
+Minimal Detectable Force: 20 g

## EXPLODED VIEW



## SENSOR MECHANICAL SPECIFICATIONS – 15 MM Diameter



### SENSORS

#### S15-4.5N

- +Full Scale Range: 450 g (1.0 lbs)
- +Minimal Detectable Force: 0.9 g

#### S15-45N

- +Full Scale Range: 4.5 kg (10 lbs)
- +Minimal Detectable Force: 9 g

#### S15-450N

- +Full Scale Range: 45 kg (100 lbs)
- +Minimal Detectable Force: 90 g

### CALIBRATED SENSORS

#### S15-4.5N

- +Full Scale Range: 450 g (1.0 lbs)
- +Minimal Detectable Force: 0.9 g

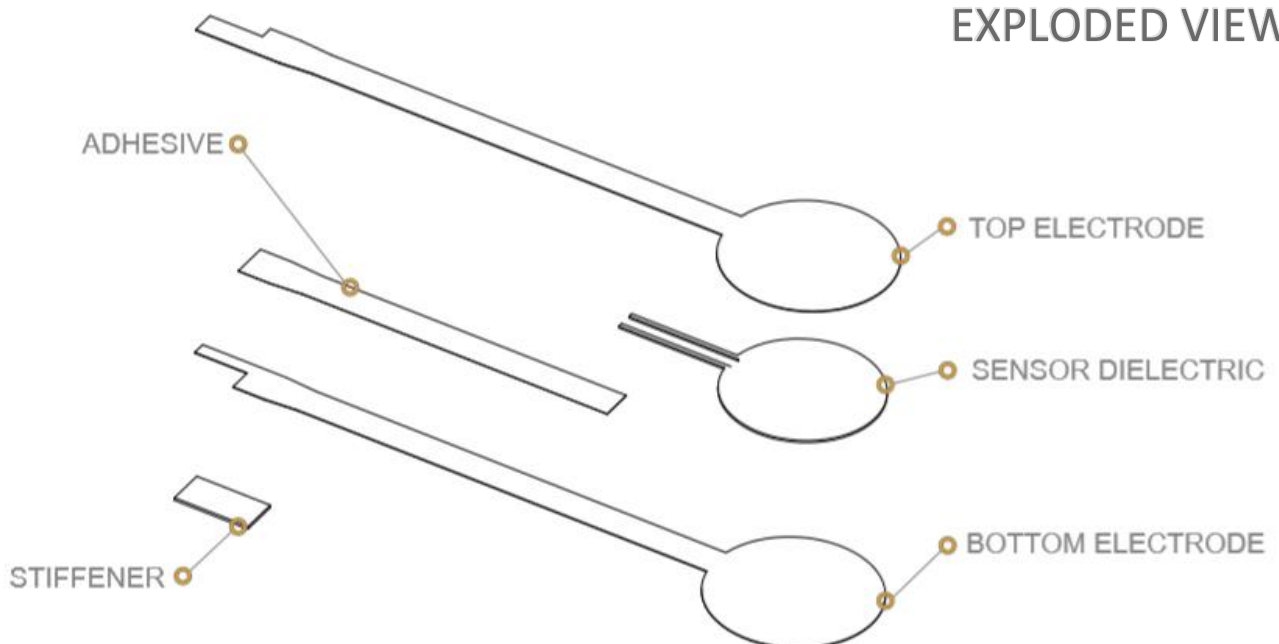
#### S15-45N

- +Full Scale Range: 4.5 kg (10 lbs)
- +Minimal Detectable Force: 9 g

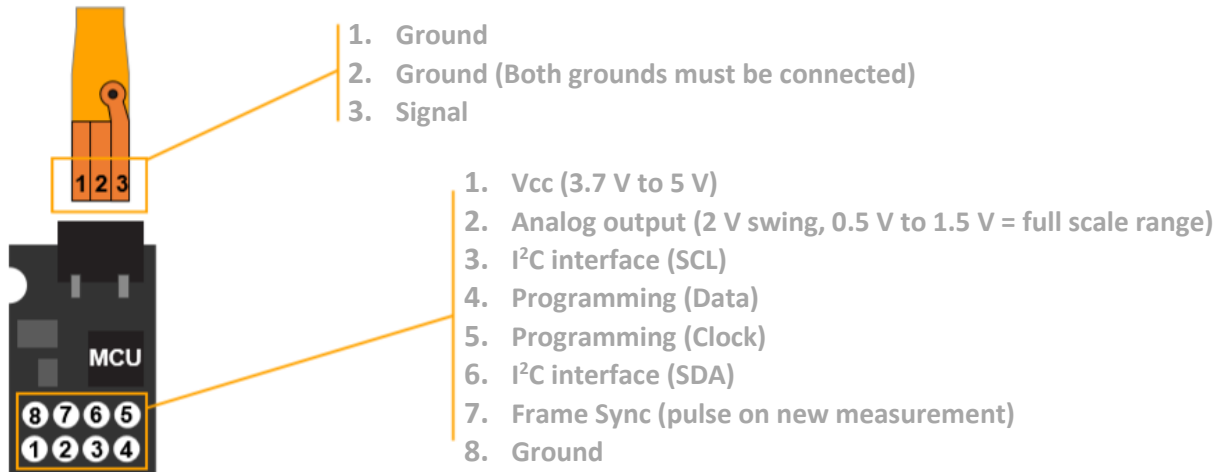
#### S15-450N

- +Full Scale Range: 45 kg (100 lbs)
- +Minimal Detectable Force: 90 g

## EXPLODED VIEW



## PINOOTS DIAGRAM FOR SENSORS AND I<sup>2</sup>C BOARD



## I<sup>2</sup>C BOARD ELECTRICAL SPECIFICATIONS

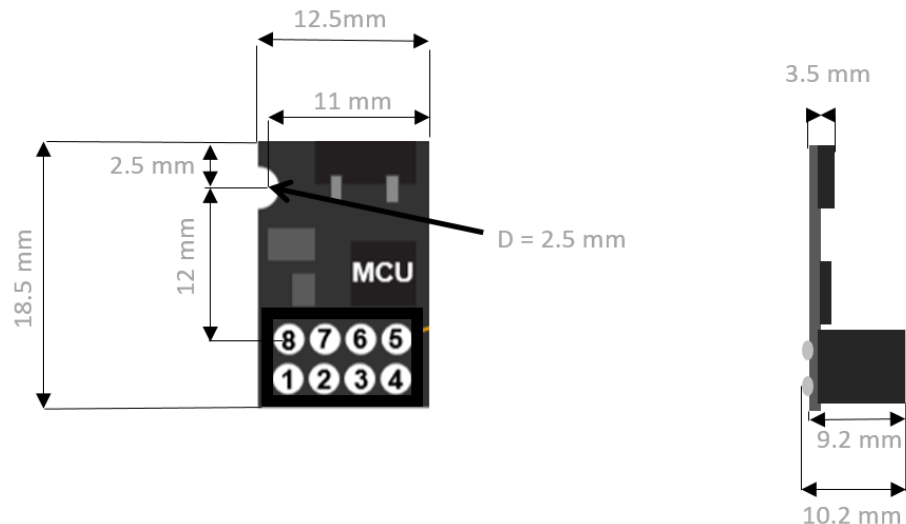
Update Rate	~100 Hz
Analog Out	0.5 V – 1.5 V
Digital Interface	I <sup>2</sup> C (100 kHz), 10-bit resolution
IO Voltage	3.3 V
Supply Voltage	3.7 V – 5 V
Input Current	2.7 mA
Weight	Sensor 0.23 g/ Electronics 1.6 g
RoHS	Compliant
Operating Temperature	-40 °C < T < 85 °C

## I<sup>2</sup>C BOARD MECHANICAL SPECIFICATIONS

Typical tolerance: ± 0.2mm

Diagrams are not to scale.

Header socket pitch is 0.1" (2.54mm)



## USB BOARD ELECTRONICS SPECIFICATIONS

Update Rate	~100 Hz
Digital Interface	Sensor values: 10-bit precision (115200 BAUD)
IO Voltage	5 V (No IO available)
Supply Voltage	5 V USB via USB Mini B
Input Current	5.1 mA
Weight	0.34 g
RoHS	Compliant
Operating Temperature	-40 °C < T < 85 °C

## USB BOARD MECHANICAL SPECIFICATIONS

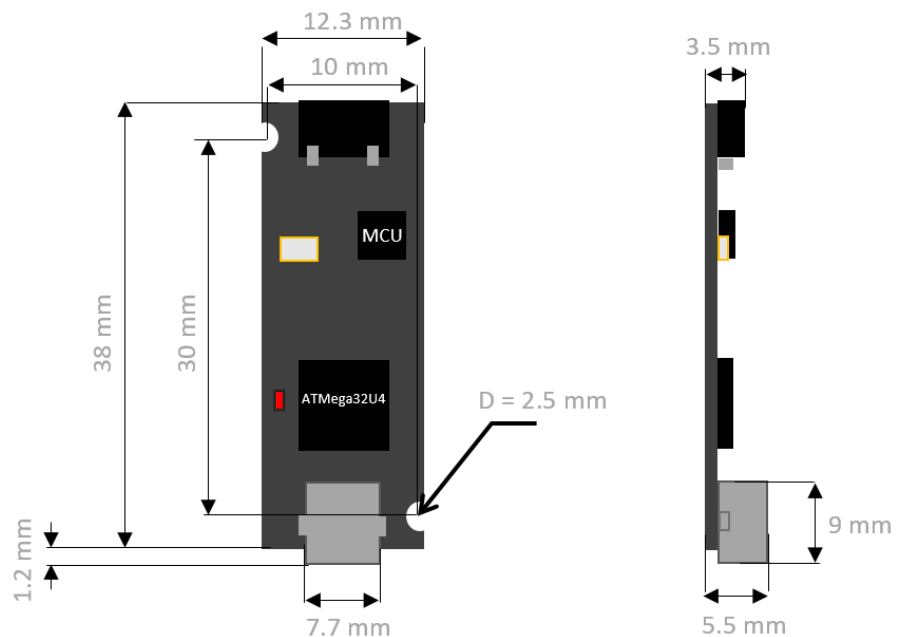
Typical tolerance:  $\pm 0.2\text{mm}$

Diagrams are not to scale.

No user serviceable pin breakout is available.

Red LED is used for simple load visualization.

Output port is USB Mini B



## TAIL EXTENDER GENERAL SPECIFICATIONS

Diagrams are not to scale.

