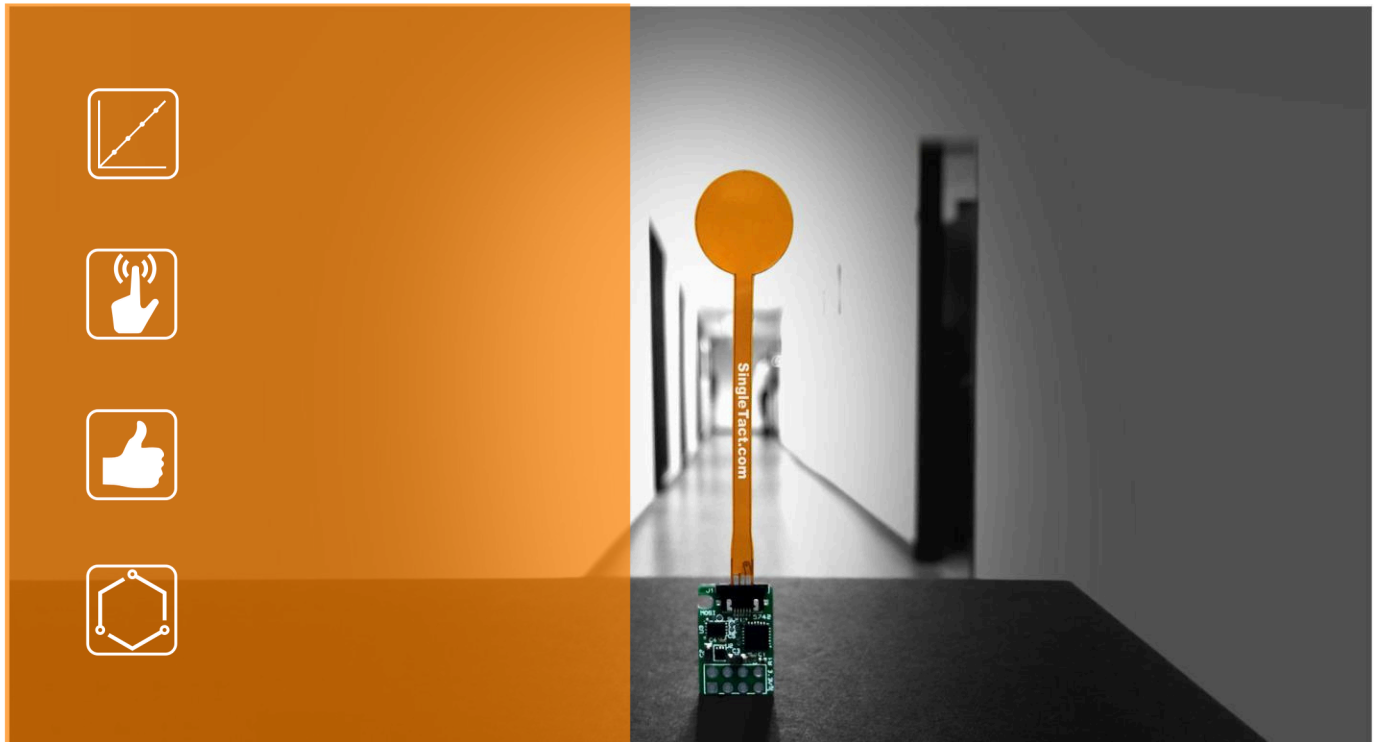


SingleTact capacitive force sensing technology delivers superior sensitivity and repeatability than resistive sensors. They provide truly incredible performance, especially considering that they are only 0.3 mm thick.



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.

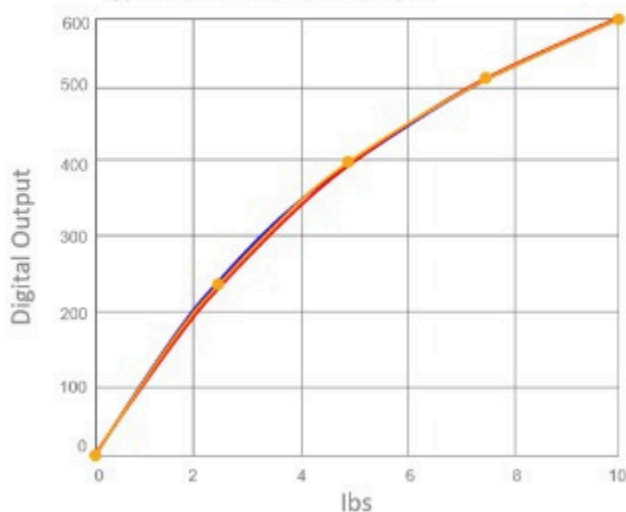
Custom designed solutions available for OEM applications.

SENSOR PERFORMANCE

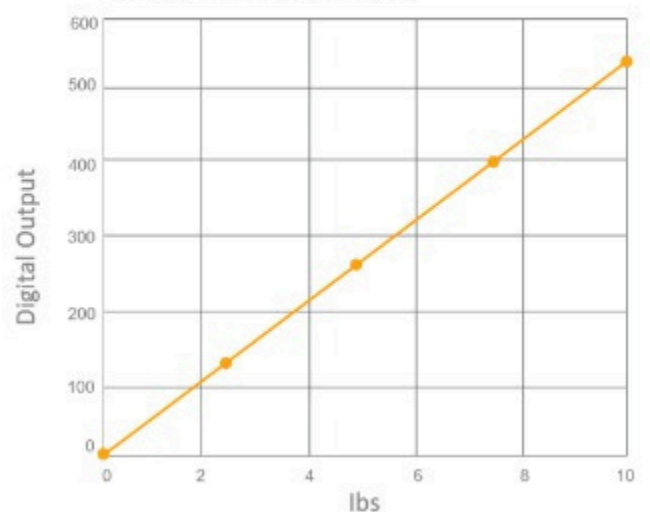
Force Resolution	< 0.2% of Full-Scale Range (FSR)
Maximum Force	300% of FSR
Typical Repeatability Error	< 1.0% (1 sigma of FSR)
Operating Temperature	-40 °C < T < 85 °C
Temperature Sensitivity	< 0.2%/°C
Linearity Error	< 2.0%
Drift	2% in 1 min, 4% in 10 min; at 50% FSR load
Hysteresis	< 4.0%
Sensor Response 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
Maximum bend radius of sensor head	300 mm
Maximum bend radius of sensor tail	3 mm

SENSOR CHARACTERISTICS

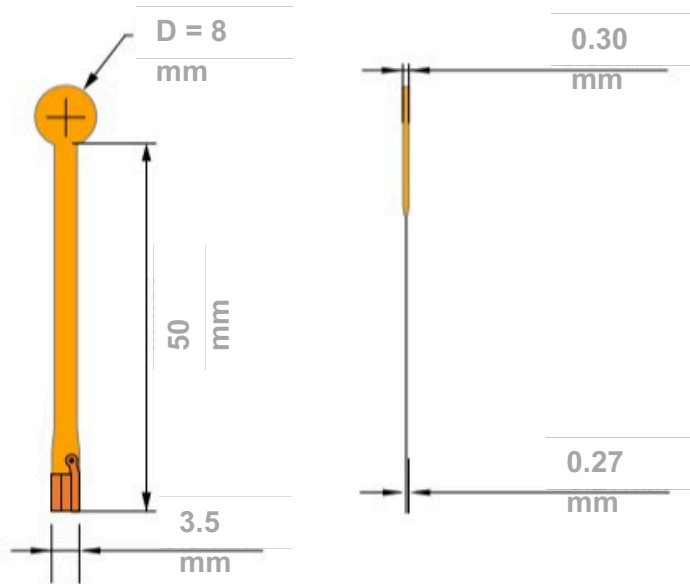
Typical Uncalibrated Output



Typical Calibrated Output



SENSOR MECHANICAL SPECIFICATIONS – 8 MM 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

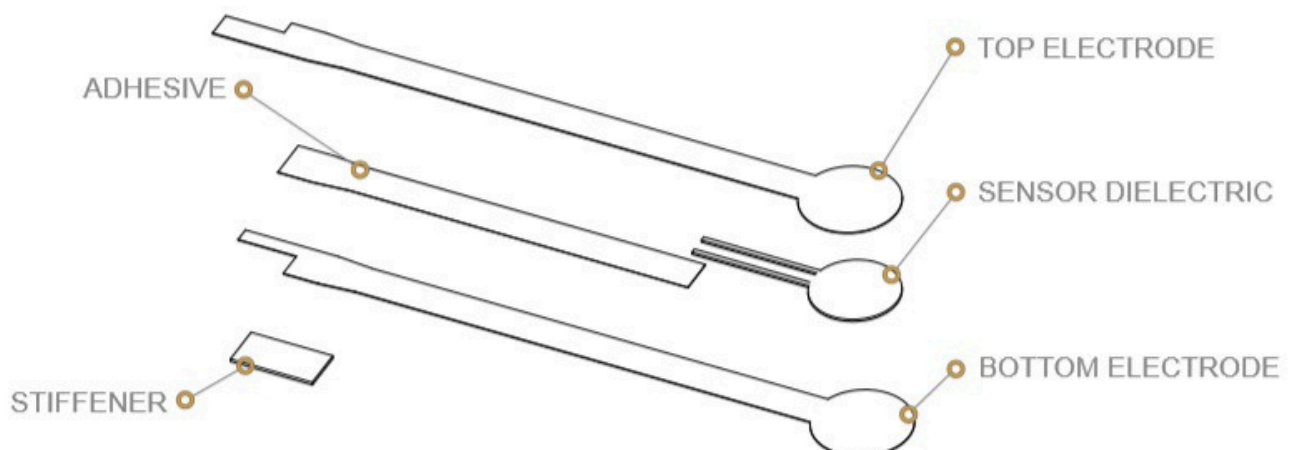
CS8-10N

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

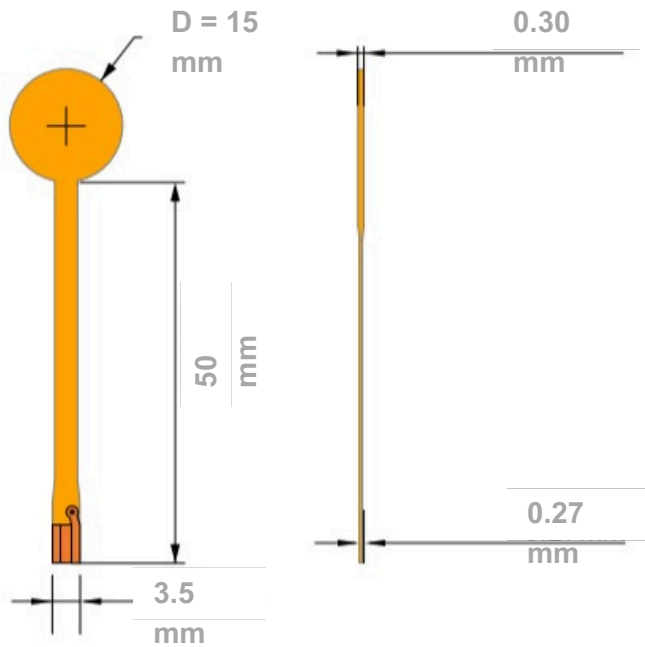
CS8-100N

+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

CS15-4.5N

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

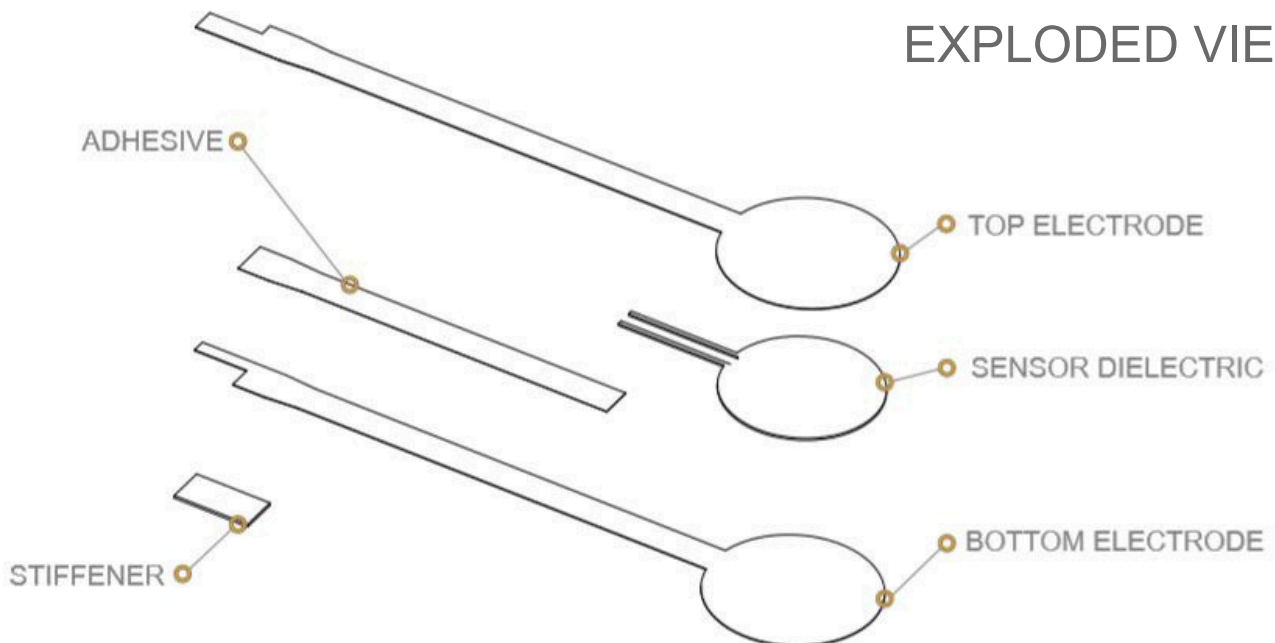
CS15-45N

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

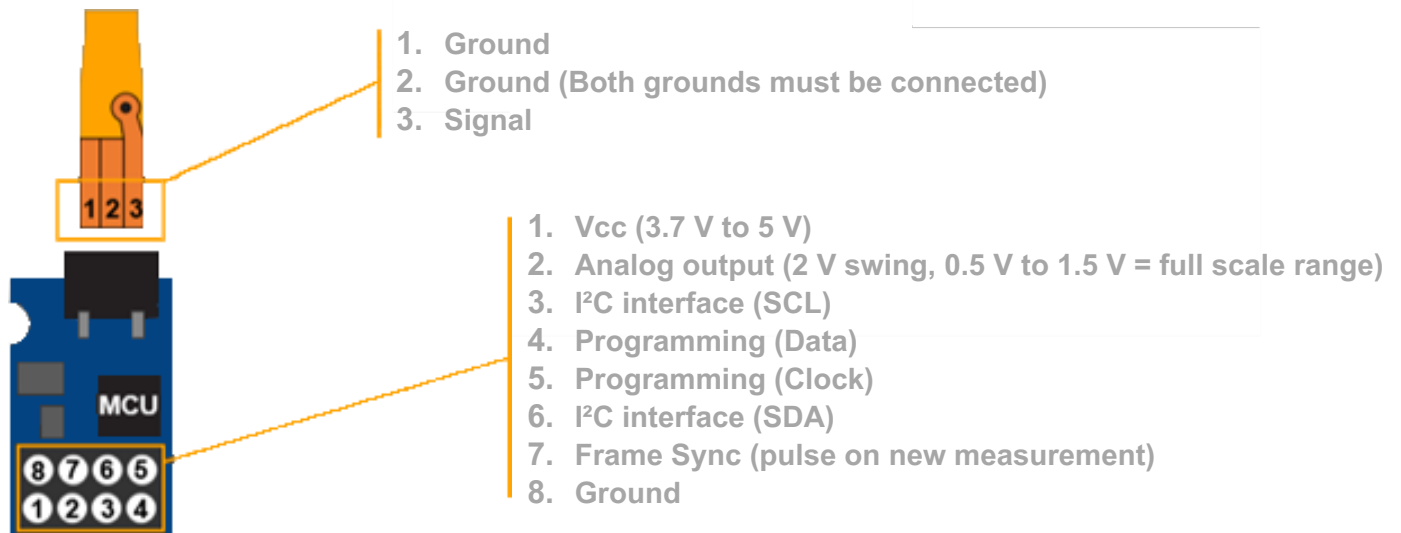
CS15-450N

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

EXPLODED VIEW



PINOUTS DIAGRAM FOR SENSORS AND I²C BOARD



I²C BOARD ELECTRICAL SPECIFICATIONS

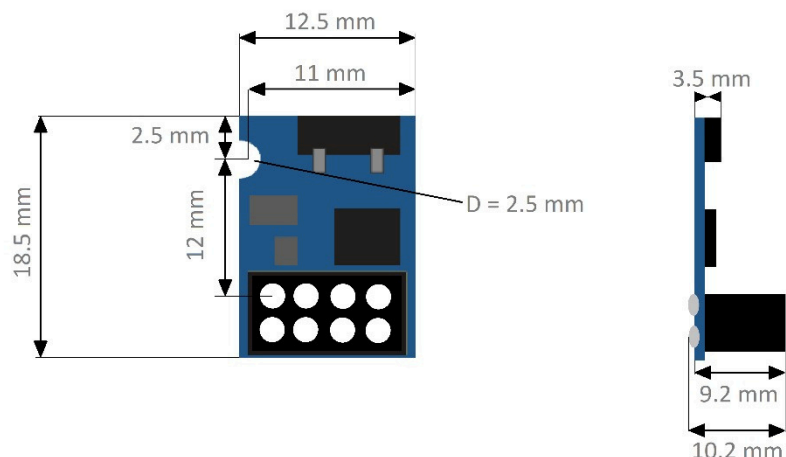
Update Rate	Up to 120 Hz
Analog Out	0.5 V – 1.5 V
Digital Interface	I ² C (100 kHz), 10-bit resolution
IO Voltage	3.3 V
Supply Voltage	3.7 V – 5 V
Input Current	2.7 mA
Weight RoHS	Sensor 0.23 g/ Electronics 1.6 g
Operating	Compliant
Temperature	-40 °C < T < 85 °C

I²C 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

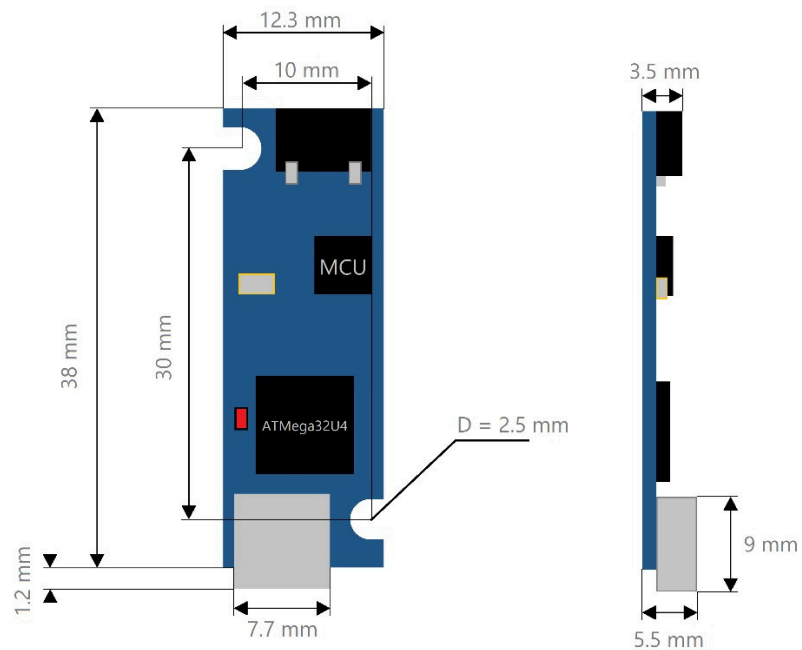
Typical tolerance: $\pm 0.2\text{mm}$

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.

