

Membrane Force Sensor

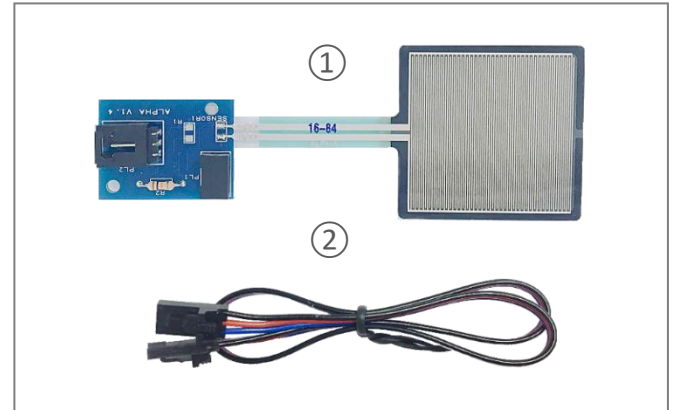
This sensor kit will assist you to quickly understand the sensor technology and evaluate suitability for your design.

What' included

- ① MF02A Sensor kit -1pc
(Sensor MF02A-N-221-A01 + PCB)
- ② Cable - 1pc (3 Pin Molex Connector)

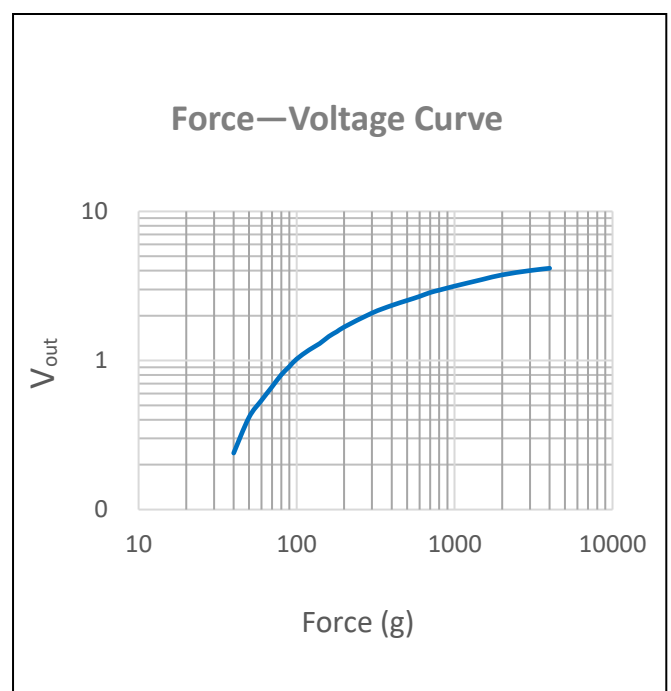
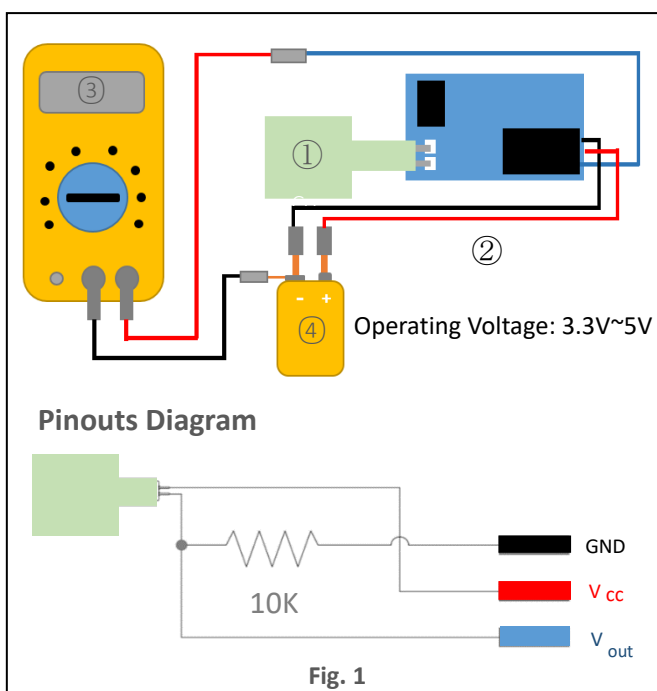
Recommended items

- ③ Voltage meter - 1pc or Oscilloscope - 1pc
- ④ Battery - 1 pc (3.3V~5V)



Standard Setup

Connect the sensor kit to Voltage meter (or Oscilloscope) and battery as shown Fig. 1, when force is applied, you can observe the variation between Force and Voltage. Through this sensor kit, the resistance output of the sensor is converted to Voltage output. The more force applied to the sensor surface, the higher output of voltage increased. The following is a logarithmic scale of the Force –Voltage Curve measured from our MF02A-N-221-A01 sensor kit.

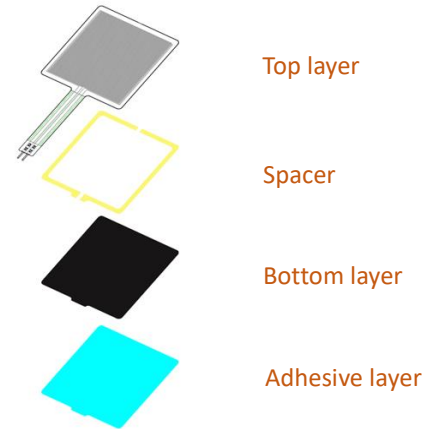


Membrane Force Sensor

Thin and flexible, Alpha's membrane force sensor can detect the change of the applied force in the field of pressure measurement and wearable technology applications.

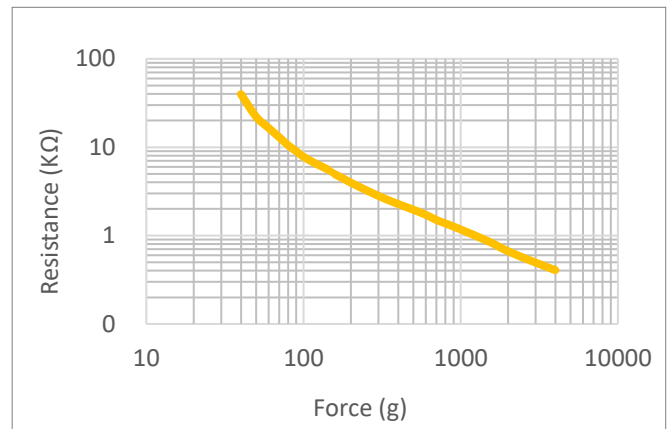
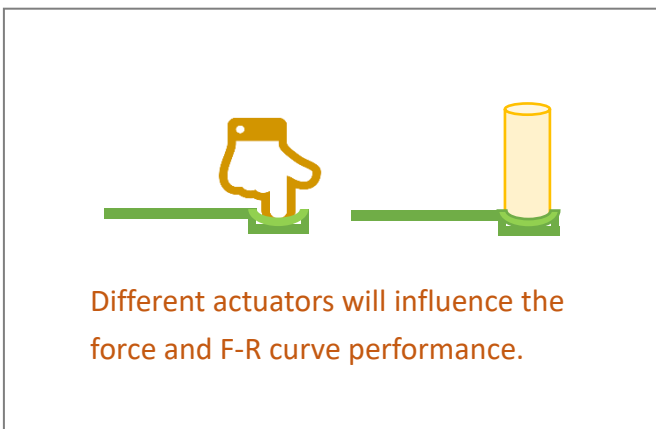
Construction of Sensor

The sensor consists of four layers. The top and bottom layers are maintained separately by the spacer. When applying force or a load on the sensor surface to press the two layers together, it actuates the sensor and feeds out a resistance output. The adhesive layer can firmly fix the sensor to a supporting substrate.



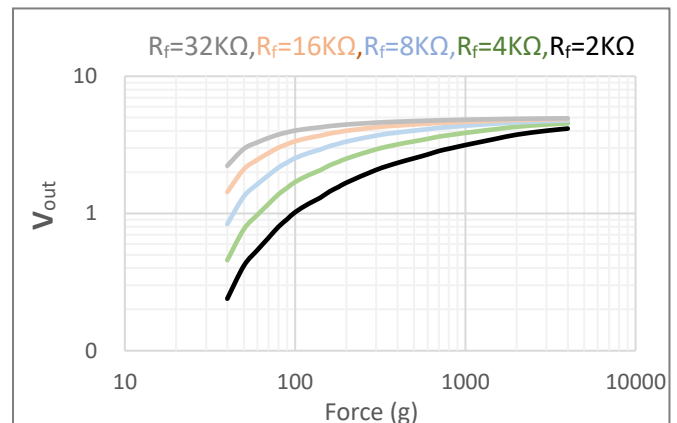
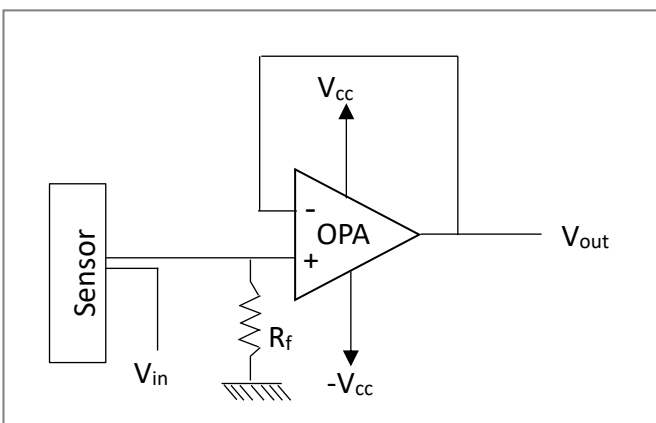
Sensor Characteristics

Following is a logarithmic scale of the Force - Resistance curve measured by a 10mm diameter rubber actuator to press on the active area of MF02A-N-221-A01. As the force applied to the active area increases, the resistance output decreases accordingly. The F-R curve performance will be affected by the dimension, shape, and material of the actuator.



Sample Circuit

Using different fixed resistors can alter the Voltage-Force curve in order to achieve a desired force sensitivity range.




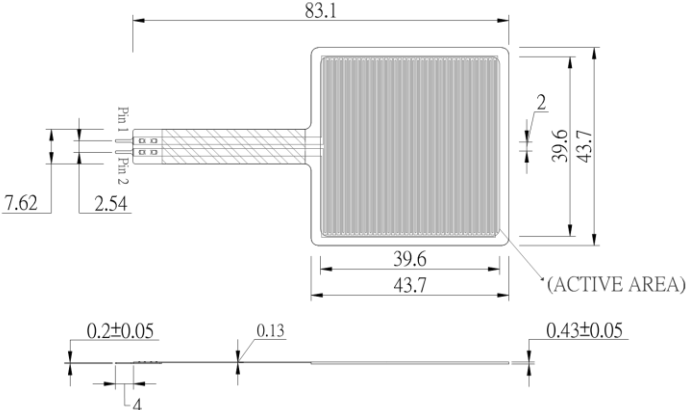
Membrane Force Sensor

Application

- ✓ Fitness, Medical, Industrial and many others

Feature


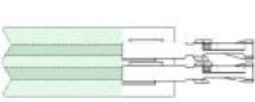
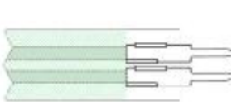

- ✓ Ultra-thin, Flexible and sealed properties, Velocity-sensitive

| Order Code | Outline Drawing |
|--|---|
| <p>MF02A-N-221-A01</p>  |  |

SPECIFICATION

| MODEL | MF02A-N-221-A01 |
|------------------------------------|---------------------------|
| FORCE SENSITIVITY RANGE | 30g ~ 1000g (0.3N ~ 9.8N) |
| ACTIVE AREA | 39.6mm x 39.6mm |
| FORCE REPEATABILITY (SINGLE PART) | 2% |
| FORCE REPEATABILITY (PART TO PART) | 5% (Single batch) |
| FORCE RESOLUTION | Continuous(Analog) |
| STAND-OFF RESISTANCE (UNLOADED) | >20M Ω |
| RESPONSE TIME | <1ms |
| OPERATING TEMPERATURE | -30°C to +85°C |
| LIFE CYCLE (WITHOUT FAILURE) | >10 Million |

CONNECTOR OPTIONS

| Bear Tail | Female Contacts | Solder Tabs (pin) | Female Contact with Housing |
|---|---|--|---|
|  |  |  |  |

Design and specifications presented here are for the standard parts only. Please kindly contact us for your special requests and ask for the current technical specifications before purchase and/or use.