Arduino Sensor Force Sensitive Resistor 80cm Model: FSR-408

Overview:

The RP-L resistive pressure sensitive sensor is a flexible thin film sensor whose resistance value decreases as the pressure acting on the sensing area increases. The single-sensing area sensor is equivalent to a two-port variable resistor whose resistance value is controlled by pressure. It is also equivalent to a switch with a certain threshold. This threshold is determined by the combination of pressure and equipment parameter settings.

RP-L flexible film pressure sensitive sensor is composed of polyester film with excellent mechanical properties, high conductive material and nanometer pressure sensitive material. The top layer is flexible film and composite pressure sensitive layer.

The bottom layer is flexible film and composite. The conductive line above. Both are bonded by double-sided tape and the sensing area is isolated. When the sensing area is pressed, the lines that are disconnected from each other at the bottom layer are conducted through the pressure sensitive layer of the top layer, and the resistance output value of the port changes with pressure.

Specification:

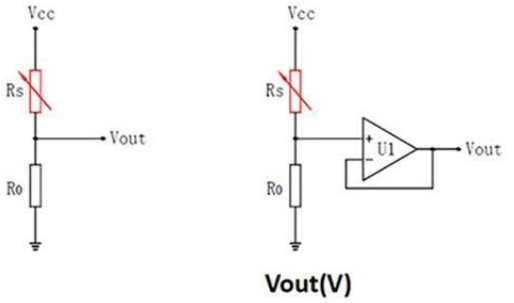
- Thickness: 0.35mm
- Type: Flaky, Flexible
- Trigger Force: Less than 20g, trigger when the default resistance value is less than 200kΩ
- Pressure Sensing Range: 20g-10Kg or more
- Pressure Mode: static or dynamic (within 10Hz frequency)
- Untriggered resistance: greater than 10mΩ
- Activation Time: less than 0.01s
- Temperature: -40°C-85°C
- Durability: more than 1 million times
- Consistency: The resistance of a single product is less than +/-3%, within +/-10% of the same batch of products (under the same test conditions)
- Hysteresis: +10%, (RF+ - RF-)/FR+, 1000g force
- Response Time: <10ms
- Electrostatic discharge EDS: not sensitive
- Drift: -5%, 2.5Kg force static load 24H
- Length: 40cm

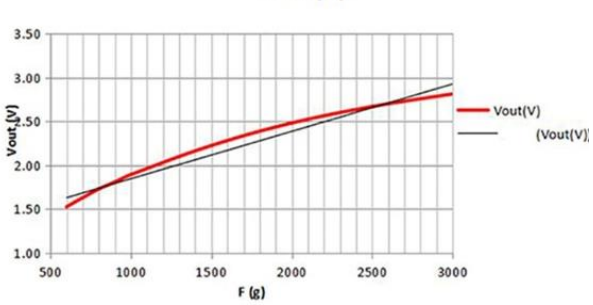
Applications:

- Monitoring in bed
- Sleep monitoring
- Intelligent running shoes: record the intensity and frequency of compression
- Smart switch: set velocity identification to prevent misoperation
- Counter: record the number of times of compression
- Monitoring of pressure level: detecting the degree of human body pressure on medical equipment

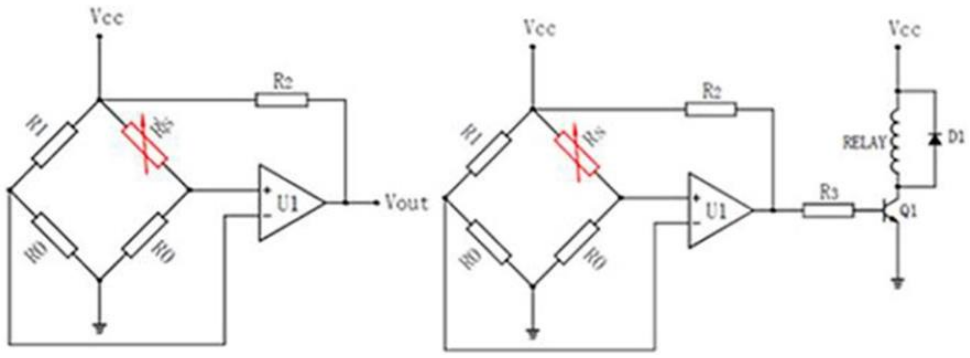
Basic Circuit Application:

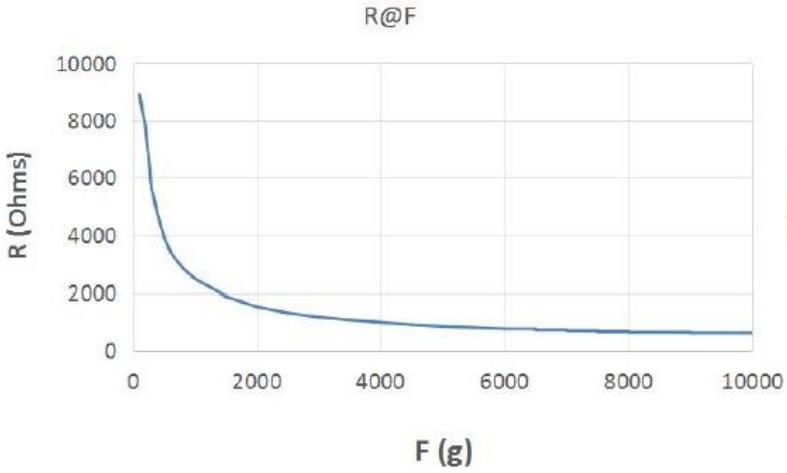
Voltage divider: The sensor is connected in series with a fixed resistor to measure the output voltage across the fixed resistor. Vout= Vcc*R0/ (R0+Rs) In general, the recommended value of the fixed resistor is 1/3 to 1/2 of the value of the applied resistor range of the sensor. In addition, by selecting a suitable fixed resistor, the pressure and output voltage can exhibit a certain degree of approximate linear relationship within a certain pressure range. Depending on the impedance requirements of the measurement circuit, an operational amplifier can be added after the voltage divider.

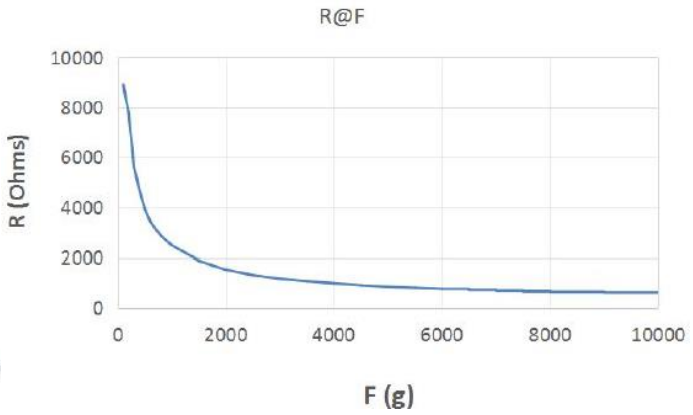




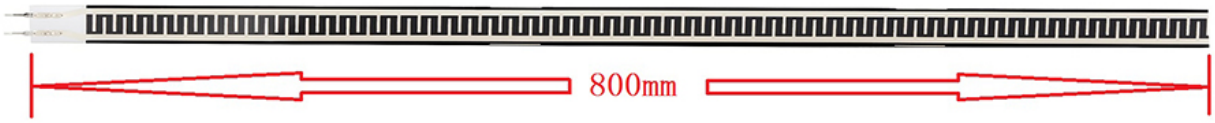
Pressure Threshold Switch: This is a typical application circuit that controls on and off by setting a specific pressure. It consists of a Wheatstone bridge and a voltage comparator. When the pressure increases so that the sensor resistance is less than R1, the voltage comparator U1+ is higher than U1- and outputs a high level. The high level of the output can be added to the device attached later.







Dimensions:



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