

Force Sensor used in Instrumented Glove

Model: Force Sensitive Sensor (Film Pressure Sensor - 20kg)

Number of Sensors: 5 (one for each finger)

Price: 95LE per sensor at Future Electronics

Specifications:

- Load capacity: 0 - 20kg.
- Outer diameter: 9mm
- Sensing inner diameter: 7.5mm
- Overall length: 45mm
- Resistance Range: Infinite (no pressure) to 200Ω (max pressure)

Note: It is advised to fix the sensor on a flat surface for consistent readings. Calibration will be needed for better accuracy.

How it Works:

Force Sensing Resistors (FSRs) are sensors that allow you to detect physical pressure, squeezing and weight.

The FSR is made of 2 layers separated by a spacer. The more one presses, the more of those Active Element dots touch the semiconductor and that makes the resistance go down. This action reduces the resistance of the sensor.

Reading Sensor Data:

As seen from the concept driving this sensor operation, we can read force changes based on the change in resistance value of the FSR. This can be done by having a voltage divider circuit in which analog voltage signal enters the microcontroller. As in the following configuration, as more pressure is applied, FSR resistance decreases and a higher voltage signal enters the microcontroller.

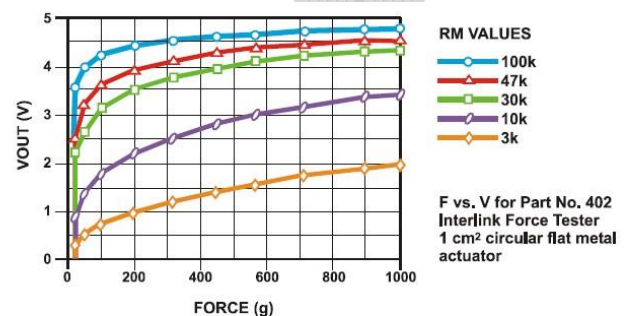
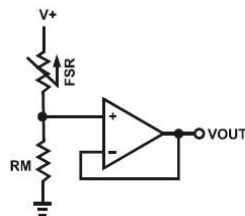
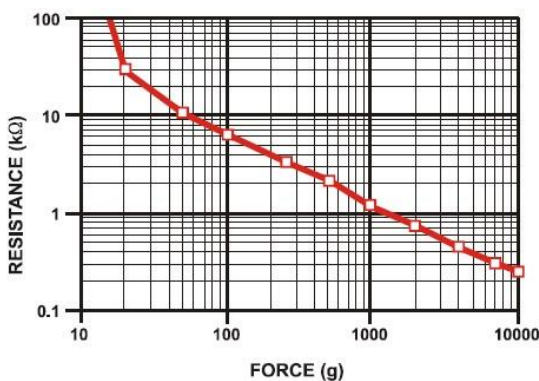


Figure 9
FSR Voltage Divider

