

PodiSense FSR datasheet

Description

The FSR is designed to detect shear and normal forces, featuring resistance that decreases with increasing force. It enables precise pressure distribution analysis on its surface through Python scripts. Optimized for human touch control, it's ideal for automotive electronics, medical systems, and industrial robotics applications. Customizable sizes range from 4mm² to 2500mm², with adjustable force range and sensitivity. Custom connectors are available upon request.

Features and Benefits

- Kinetics in 3D
- Force range from 0.1N to 140N with linear sensitivity
- Scalable to the desired force range and sensitivity
- Range of sizes
- Repeatable readings
- Robust

Applications

Tactile control feedback

Switch control for motor driven devices

Detect slips

Sense whether a touch is accidental or intended by reading the shear force

Use force for UI feedback

Detect more or less user force to make a more intuitive interface

Find centroid of force

A single cell can determine centroid of force

Detect presence, position, or motion

Of a person or patient in a bed, chair, or medical device

Many other force measurement applications

Performance Characteristics

Specifications

Feature	Condition	Value
Pressure range	customised	1 - 1400 kPa (0.1-140N)
Pressure Sensitivity		350 Pa/mV (350mN/mV)
Hysteresis		=<5%
Response		2ms
Recovery		5ms
Durability	Lifetime (tested)	200000+ cycles
Thickness Range	customised	0.4-1.5mm
Size	customised	4-40mm diameter
Non-Actuated Resistance		10kΩ
Repeatability	Single part	2%
Zero-drift time	Unloaded	0.5%/1h
Reproducibility	Part to Part	5%
Relaxation (Creep)	Loaded	5%/30min
Linearity R ²		0.99
Temp Operating Range	(Recommended)	-30 - +100 °C

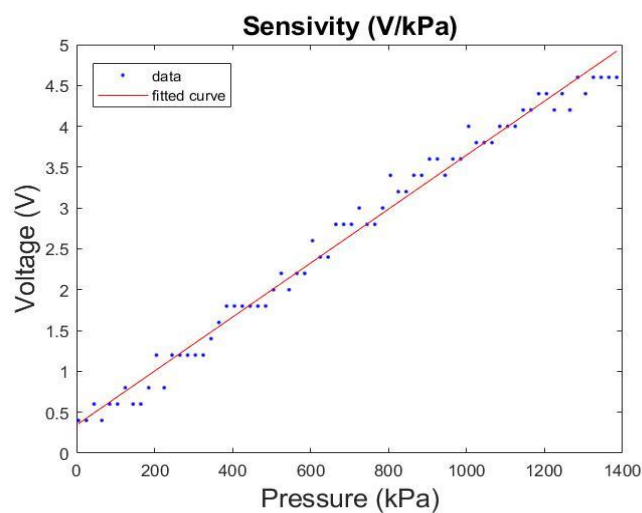
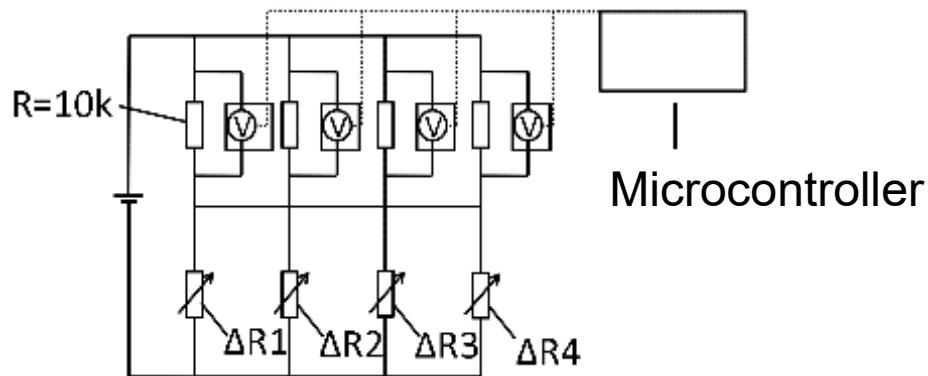
Specifications are based on measurements at 10 kg (100N)

*** Custom sensors allow for adjustable maximum actuation force.

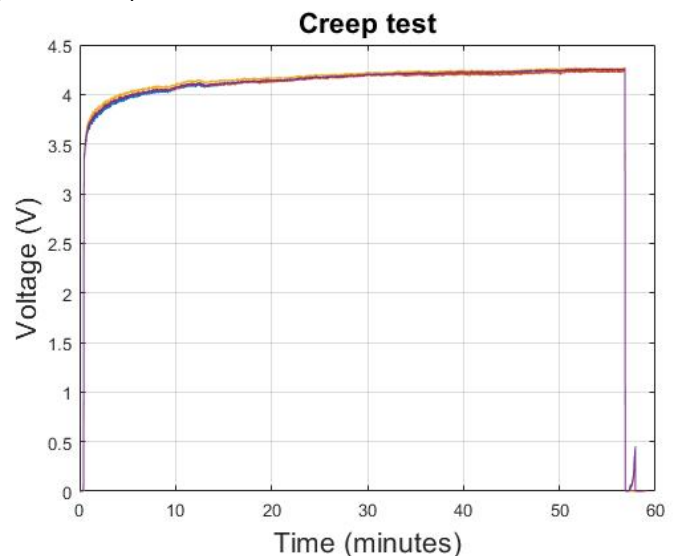
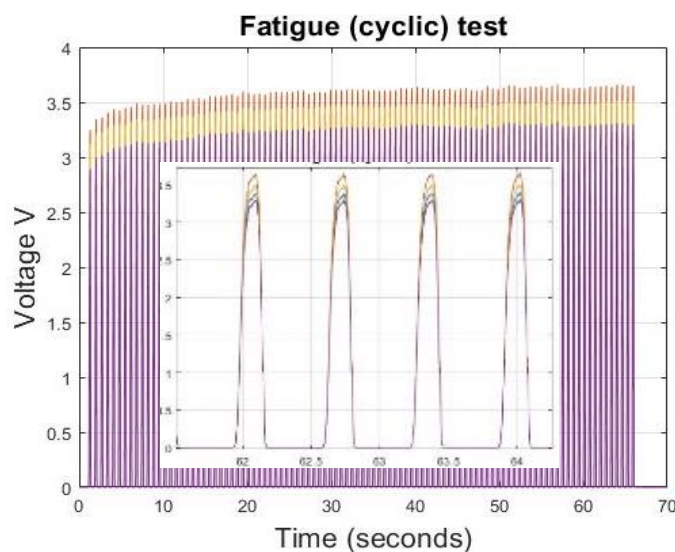
*** Custom size and thickness

Application Information

The PodiSense FSRs are five-wire sensors whose resistance changes with applied force. For straightforward force-to-voltage conversion, each FSR negative terminal connects to a resistor in a voltage divider setup, as illustrated in the figure below. Positive terminal connects to a 3.3V supply.



Stepwise loading from 0 to 140 N at increments of 2N (calibrated)



Schematic

