

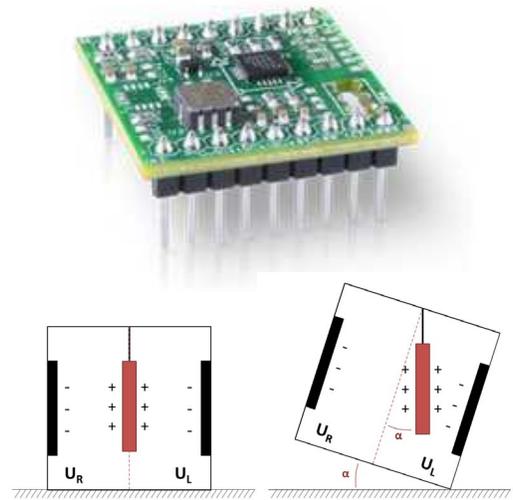
## HOW DOES A MEMS SENSOR WORK?

### MEMS INCLINOMETERS AND ACCELEROMETERS ARE LOW-COST, HIGH PRECISION INERTIAL SENSORS THAT SERVE A WIDE VARIETY OF INDUSTRIAL APPLICATIONS.

That's all well and good, but what's in a MEMS sensor anyway? How can a MEMS sensor serve you? What advantages does it have? These are questions that can be answered here.

#### So what goes on inside that little sensor?

MEMS is a chip-based technology, known as a **Micro Electro-Mechanical System**. Sensors are composed of a suspended mass between a pair of capacitive plates. When tilt is applied to the sensor, the suspended mass creates a difference in electric potential. The difference is measured as a change in capacitance.



The greatest resolution you can get with a MEMS inclinometer is  $0.0001^\circ$  (JDI series). That's a different story from the highly accurate electrolytic line. This line's most sensitive tiltmeter (A603 tiltmeter) boasts a 2.5 nanoradian resolution. However, MEMS has some advantages of its own.

A MEMS sensor provides the convenient features available with any other sensor line, but you don't need to concern yourself with space constraints. MEMS utilizes very compact micro machine components so small that each sensor can fit into the palm of your hand. They have an IP67 seal and since the operating temperature range is  $-40^\circ$  to  $+85^\circ\text{C}$ , they will withstand some intense conditions. While electrolytic sensors have much higher accuracy, some of them can be sensitive to temperature.

These sensors are great solutions to applications that do not demand the highest accuracy such as industrial automation, platform leveling, position control and pitch and roll measurement. Since they are low cost, you can even save some dough on your next big project!