

Small, Multipurpose Transducer is Stable and Responsive

Case # 274

A new type of electrical transducer system offers small size, stability, high signal output, and adaptability to numerous applications that require measurement of 0 – 10 gram forces.

High Sensitivity

The system incorporates a pair of parallel circuits tuned at or near resonance with a radio-frequency voltage source. A capacitive transducer is inductively coupled to one of the circuits so that forces acting on the transducer are transformed into variations in the tuned circuit.

As tuning moves above or below resonance, output can be measured as a positive or negative voltage. The signal, typically measured in hundreds of millivolts, can be used as is or amplified.

Coaxial cable allows linking of the transducer to a detection circuit across a relatively long distance without degrading the system's performance.

An Improved Beam

The transducer beam is designed to be very compliant, allowing it to deliver fast data outputs. It is also more durable than standard strain gauge beams, resulting in a longer lifespan and lower maintenance for the transducer.

A Versatile Design

The device can be fashioned as a force or load cell, linear detector, rotational detector, or vibration sensor, or as a

non-contact current detector for small, direct current circuits. Any of these variations can be produced with only minor changes in the machining of the transducer head.

Next Steps

The transducer's advantages have been demonstrated in several years of laboratory use. Mass production could begin immediately after machining setup and calibration of RF signals.

Commercialization

High demand for the transducer can be anticipated from markets such as research universities, pharmaceutical companies, and manufacturers.

Patent/Licensing Status

Patent pending. Worldwide rights available.

Primary Investigator

Gilbert P. Gianetti

Competitive Advantages

- ☑ Durable and stable over a wide temperature range.
- ☑ Low manufacturing costs.
- ☑ Easily adapted for use with multiple types of forces.
- ☑ Rapid beam flexing allows output of fast data streams.
- ☑ Ready for final steps leading to commercialization.

Contact Kerry Swift, Technology Licensing Officer:

802/656-9964 (tel) 802/656-8782 (fax)

Kerry.Swift@uvm.edu

Given Building E201, Burlington, VT 05405