

MEMS Tiltmeter

Applications

The Model 6160 MEMS Tiltmeter is designed to measure tilt in structures including...

- Buildings
- Dams
- Embankments
- Slopes
- Excavation walls
- Open pits



• Model 6160 MEMS Tiltmeter shown with mounting bracket assembly.

Operating Principle

The Model 6160 MEMS Tiltmeter is designed for attachment to structures, on either a vertical or horizontal surface by means of an adjustable bracket, and for the subsequent measurement of any tilting that may occur.

The tiltmeter itself contains a Micro-Electro-Mechanical Sensor and associated signal conditioning, designed to drive long cables without output signal degradation. The sensor has excellent reliability and stability over time and temperature, and outstanding shock and overload durability.

Advantages and Limitations

The MEMS tilt sensors combine a high range with high sensitivity, and good calibration accuracy. They have excellent long-term stability and are immune to shock loading.

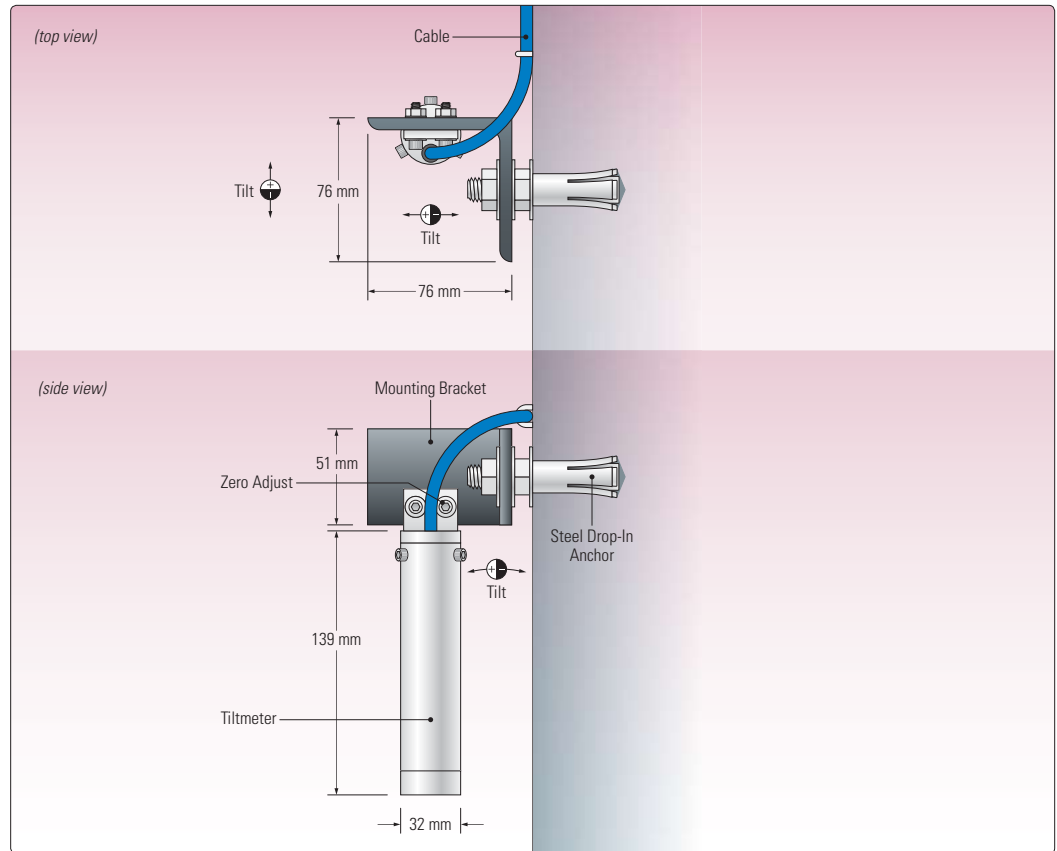
The sensor output is ± 3 V at $\pm 10^\circ$, which can be transmitted over long cables.

Biaxial sensors contain two sensors oriented at 90° to one another.

The sensor is read out by the Model RB-500 or the Model 8020 Micro-10 Datalogger.



- Model 6160 installation using a custom mounting bracket designed for concrete face rock fill dam applications (shown with protective cover removed).



● Installation details and dimensions for the Model 6160 Tiltmeter.

System Components

The basic transducer is mounted inside a stainless steel housing equipped with a lug for mounting the sensor to an adjustable bracket. The bracket is bolted to the structure using hardware supplied with the sensor, which includes a 3/8-inch drop-in anchor. Special mounting brackets and protective enclosures are also available.

A thermistor mounted inside the sensor housing permits the measurement of temperatures.

Readout is accomplished using a Geokon Model RB-500, Readout Box or the Model 8020 Micro-10 Datalogger.

Technical Specifications

Standard Range ¹	±15°
Resolution ²	±10 arc seconds (±0.05 mm/m)
Accuracy ³	±0.1% F.S.
Temperature Range	-20°C to +50°C
Shock Survival	2000 g
Length × Diameter ⁴	139 × 32 mm

¹Other ranges available on request.

²Depends on readout technique.

³Established under laboratory conditions.

⁴Transducer only.



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