

EL Monopod Tiltmeter



Applications

The EL monopod tiltmeter is designed to monitor changes in the inclination of a structure. It features a unique, single-point anchor for easy installation anywhere. Applications for the tiltmeter include:

- Monitoring rotation of retaining walls, piers, and piles.
- Providing early warning of potential structural damage.
- Documenting any effects of nearby deep excavations.
- Monitoring the behavior of structures under load.

Operation

The monopod tiltmeter is a uniaxial or biaxial electrolytic tiltmeter housed in a compact, waterproof enclosure.

The ceramic EL sensor used in the monopod tiltmeter measures tilt over a range of $\pm 10^\circ$ from vertical. The biaxial model has a second sensor mounted 90° to the first. Each sensor has signal conditioning circuitry for easy connection to data loggers.

The single anchor is typically grouted into a hole drilled in the structure. The tiltmeter is then fixed to the anchor and zeroed, using the built in bubble level and swivel clamp.

The initial reading is used as a baseline. Changes in the inclination of the structure are found by comparing current readings to the initial.

Advantages

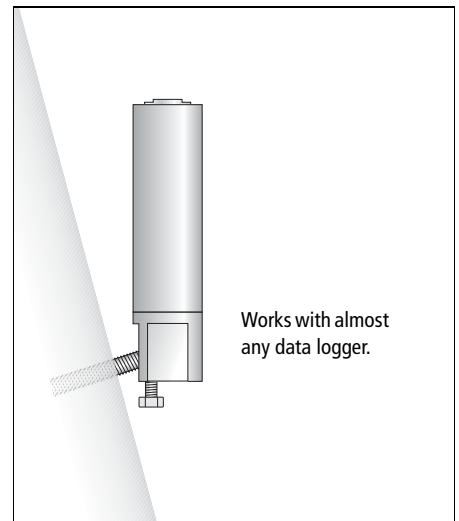
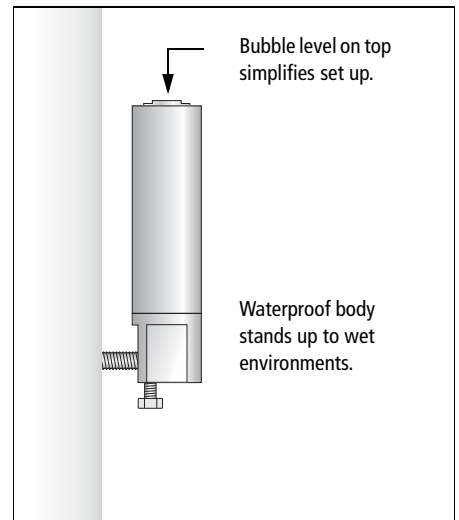
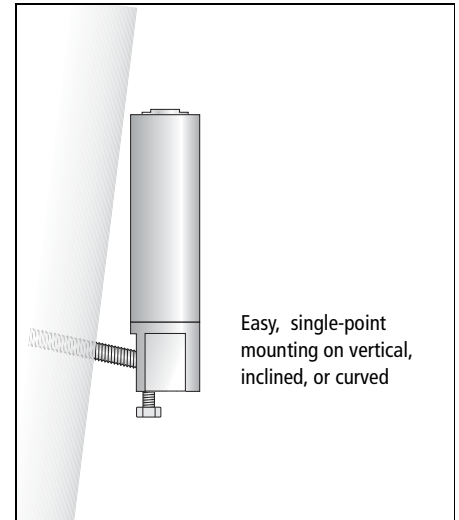
Easy to Install: One-point mounting, a built-in bubble level, and a swivel clamp make the monopod tiltmeter easy to install.

Wide Range: The tiltmeter has a range of $\pm 10^\circ$, so it can be installed off-vertical, if necessary. The wide range also eliminates the need for rezeroing when movement does occur.

Uniaxial or Biaxial: The monopod tiltmeter is available in uniaxial and biaxial versions.

Robust and Reliable: The EL tiltmeter sensor has no moving parts and its electronics are fully sealed inside the waterproof tiltmeter body.

Suitable for Automatic Readings: The tiltmeter outputs a signal that can be read by most data loggers. It can also be read manually with the EL Data Recorder.



EL MONOPOD SPECIFICATIONS

Monopod Tiltmeter, Uniaxial56803101
Monopod Tiltmeter, Biaxial.56803102

Uniaxial tiltmeter includes one electrolytic sensor with signal conditioning, a thermistor, 3 meters of signal cable, an anchor, and a manual.

Biaxial tiltmeter includes two electrolytic sensors, signal conditioning, a thermistor, 3 meters of signal cable, an anchor, and a manual.

Sensor Type: Electrolytic tilt sensor with hermetically-sealed ceramic body.

Calibrated Range: ±10 degrees.

Resolution: 9 arc seconds, using a 13 bit readout device such as the CR10 datalogger.

Repeatability: ±22 arc seconds.

Calibration: 11 point calibration taken at five temperatures from -6 to 42 °C.

Body: Aluminum body, stainless swivel clamp with teflon liner, 38 x 150 mm (1.5 x 6").

Anchor: #4 rebar, 13 x 100 mm (0.5 x 4").

SIGNAL CABLE

Signal Cable 50613527

Shielded cable with seven 22-gauge tinned-copper conductors and polyurethane jacket. Note that the tiltmeter is supplied with 3 meters of cable attached.

READOUTS

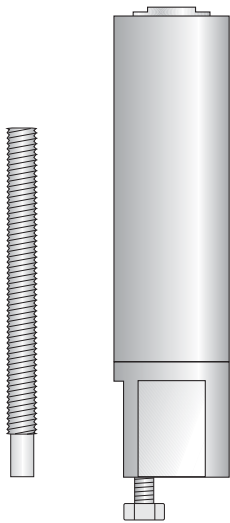
EL Data Recorder 56813500

This readout displays and stores tilt readings in volts and temperature readings in degrees C. Includes software for transferring stored readings to a Windows PC.

DATA LOGGERS

Campbell Scientific CR10X System:

Up to 16 biaxial sensors or 16 uniaxial sensors can be connected to each AM16/32 multiplexer. See separate data sheet for details.



Monopod tiltmeter and anchor