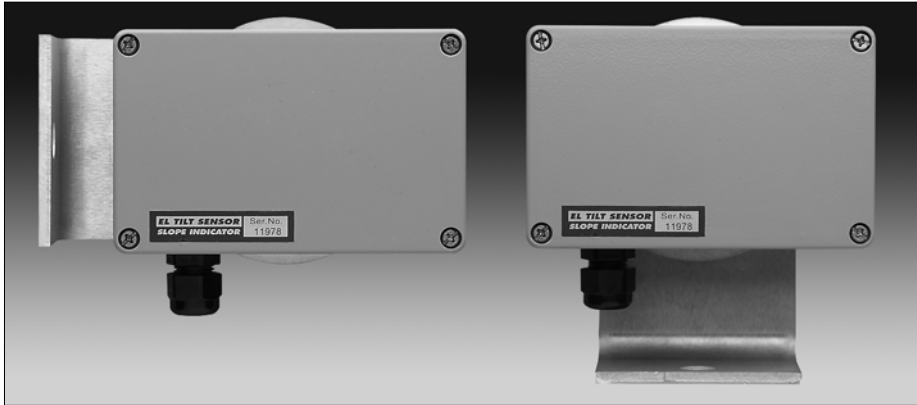


# EL Tiltmeter



EL Tiltmeter requires just one anchor. Bracket swivels for easy placement.

## Applications

The EL tiltmeter is a narrow angle, high resolution device for monitoring changes in the inclination of a structure. Applications for the tiltmeter include:

- Monitoring the rotation of retaining walls, piers, and piles.
- Monitoring the behavior of structures under load.

## Operation

The EL tiltmeter consists of an electrolytic tilt sensor housed in a compact, weatherproof enclosure.

The tilt sensor is a precision bubble-level that is sensed electrically as a resistance bridge. The bridge circuit outputs a voltage proportional to the tilt of the sensor.

The tiltmeter bracket is fixed to the structure with a single anchor. Then the tiltmeter is screwed to the bracket. After cable is attached to the tiltmeter, the tilt sensor is adjusted to the null position.

Changes in inclination are found by comparing the current reading to the initial reading. This operation can be performed in the data logger or in a spreadsheet.

## Advantages

**High Resolution:** The EL tiltmeter can detect a change in tilt as small as one second of arc.

**Robust & Reliable:** The sensor has no moving parts and is protected by a weatherproof enclosure.

**Easy to Install:** The EL tiltmeter fits nearly anywhere. It includes a swiveling, single point mounting bracket for easy placement.

**Two Versions:** The EL tiltmeter is designed specifically for economical connection to a Campbell Scientific datalogger. The SC version of the EL tiltmeter includes on-board signal conditioning for compatibility with other data loggers and readouts.

**Ready for Data Logging:** EL tiltmeters are designed for connection to data acquisition systems. Such systems monitor movements continuously and can trigger an alarm when threatening movements are detected. The SC version of the tiltmeter can also be read manually.

**Cost Effective:** The EL tiltmeter provides reliable, high-resolution measurements, installs quickly, can be removed and reused, and is available at a competitive price.



## EL TILTMETER

**EL Tiltmeter** . . . . .56802000

Designed for three-wire connection to a CR10X datalogger. Includes tilt sensor, terminal strip for connection of signal cable, housing, cable gland, swivel mounting bracket for single anchor, user manual, and calibration record. Anchor and signal cable are ordered separately.

**Sensor:** Uniaxial electrolytic tilt sensor.

**Range:**  $\pm 40$  arc minutes.

**Resolution:** 1 arc second using a Campbell Scientific CR10X data logger.

**Repeatability:**  $\pm 3$  arc seconds.

**Adjustment Range:** If movement exceeds measurement range, sensor can be zero-adjusted  $\pm 5^\circ$  before mounting bracket has to be moved.

**Operating Temperature:**  $-20$  to  $+50^\circ\text{C}$ .

**Dimensions:** 125 x 80 x 59 mm deep (4.9 x 3.2 x 2.3").

## EL TILTMETER SC

**EL Tiltmeter SC** . . . . . 56802020

Designed for six-wire connection to a readout or datalogger. Includes tilt sensor, terminal strip for connection of signal cable, housing, cable gland, swivel-mounting bracket for single anchor, user manual, and calibration record. Anchor and signal cable are ordered separately.

**Sensor:** Uniaxial electrolytic tilt sensor with built-in signal conditioner.  $\pm 2.5$  V calibration is standard. 0 to 5 V calibration is available on request.

**Range:**  $\pm 40$  arc minutes.

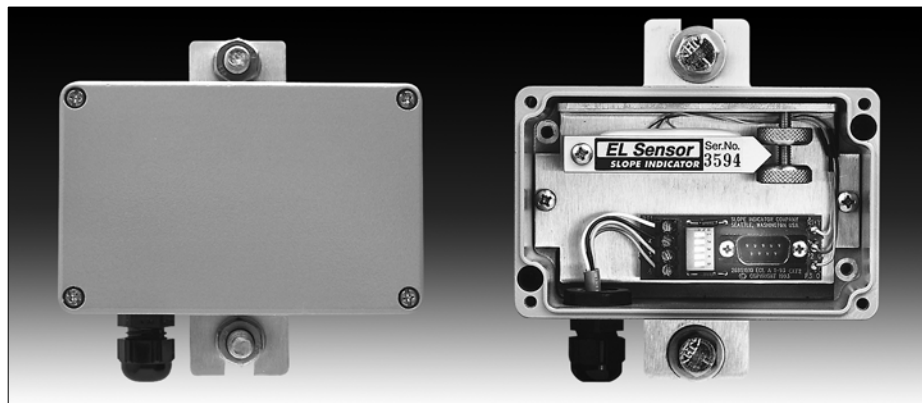
**Resolution:** 1 arc second.

**Repeatability:**  $\pm 3$  arc seconds.

**Adjustment Range:** If movement exceeds measurement range, sensor can be zero-adjusted  $\pm 5^\circ$  before mounting bracket has to be moved.

**Operating Temperature:**  $-20$  to  $+50^\circ\text{C}$ .

**Dimensions:** 125 x 80 x 59 mm deep (4.9 x 3.2 x 2.3").



EL Tiltmeter with flat mounting bracket.

## INSTALLATION ACCESSORIES

**Groutable Anchor** . . . . .56801920

One stainless steel M10 x 120 mm all-thread stud with washers and nuts.

**Mechanical Anchor** . . . . .56801930

One expansion anchor, 123 mm long, requires 15 mm x 85 mm drill hole. Includes nut and washer.

**Flat Mounting Bracket** . . . . .36802010

Two point, non-swiveling mounting bracket. Positions tiltmeter parallel to wall. Requires two anchors, not included.

**Signal Cable** . . . . .50612804

Signal cable is required for both local and remote readout. Shielded cable with four 24-gauge tinned-copper conductors and PVC jacket.

**Signal Cable for SC Sensors** . . . .50613527

Shielded cable with seven 22-gauge tinned-copper conductors and polyurethane jacket.

## READOUTS & DATA LOGGERS

### Campbell Scientific Data Loggers

12 standard EL tilt sensors can be connected directly to one CR10. Up to 32 sensors can be connected to an AM16/32 multiplexer.

3 SC tilt sensors can be connected directly to one CR10. Up to 16 sensors can be connected to an AM16/32 multiplexer.

**EL Data Recorder** . . . . .56813500

This readout is used only with the SC version of the EL tilt sensor. It displays and records tilt readings in volts and temperature readings in degrees C. It can also be used to zero SC sensors that will be connected to a data logger. Includes software for transferring stored readings to a Windows PC.

**EL Nulling Device** . . . . .56803300

The EL Nulling device provides a convenient way to zero sensors that will be connected to a data logger. The nulling device is compatible with both standard and SC sensors.

