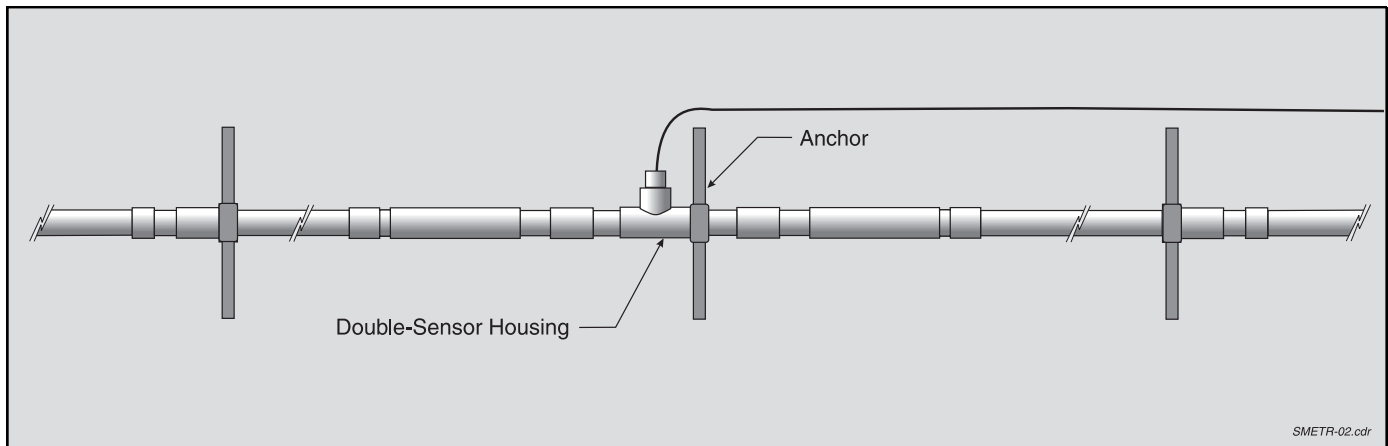


Soil Strainmeter



Applications

Typical applications for soil strainmeters include:

- Monitoring horizontal strain in embankment dams.
- Monitoring tension cracks in earth structures.

Operation

Each soil strainmeter consists of two anchors connected by a rod and a displacement sensor. The gauge length of the strainmeter, which is the distance between anchors, may be as long as 6 meters.

Strainmeters are usually linked in a series along the axis of anticipated deformation. They may also be arranged in arrays or in groups with different alignments.

The initial reading of the strainmeter is used as a datum. As soil movements occur, the distance between the anchors grows or shrinks. This changes the output of the displacement sensor.

Subsequent readings are compared to the datum to calculate the magnitude, rate, and acceleration of movement.

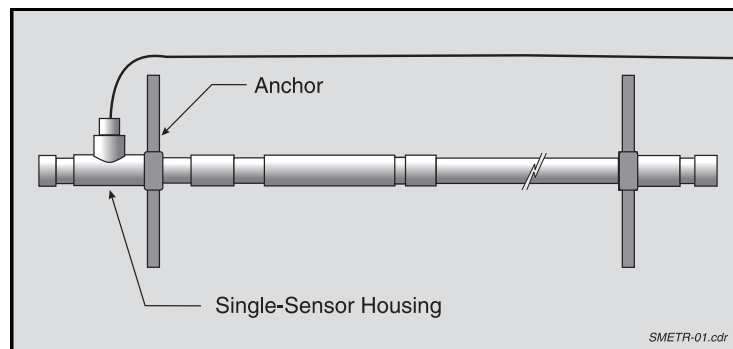
The strainmeter is available in two versions. The double-sensor version is equipped with 2 potentiometers mounted back-to-back to provide cable savings. The single-sensor version is used when only one gauge length is required or when a single gauge length must be added to a series of double sensors.

Advantages

Easy Installation: The strainmeter is designed for easy assembly, easy extension of gauge lengths, and easy adjustment.

Reduced Cable Costs: The double-sensor version allows a single cable to service two sensors, resulting in reduced cable cost.

Manual or Automatic Readout: Strainmeters can be read manually with a portable indicator or can be connected to a data logger for unattended readings.



DOUBLE SENSOR STRAINMETER

Double-Sensor Strainmeter51705620

Components include one sensor housing with two potentiometers, two stainless steel all-thread rods, telescoping PVC pipe, and three anchors. Signal cable 50613527 is ordered separately. PVC-ABS cement is required for assembly.

Gauge Length: Gauge length is adjustable between 480 to 1525 mm (19 to 60"). Longer gauge lengths are made by adding one or more gauge extension kits.

Sensor Type: Linear potentiometer.

Sensor Range: 150 mm.

Sensor Linearity: $\pm 0.3\%$ FS.

SINGLE SENSOR STRAINMETER

Single-Sensor Strainmeter51705600

Components include one sensor housing with one potentiometer, one stainless steel all-thread rod, telescoping PVC pipe, and two anchors. Signal cable 50613527 is ordered separately. PVC-ABS cement is required for assembly.

Gauge Length: Gauge length is adjustable between 480 to 1525 mm (19 to 60"). Longer gauge lengths are made by adding one or more gauge extension kits.

Sensor Type: Linear potentiometer.

Sensor Range: 150 mm.

Sensor Linearity: $\pm 0.3\%$ FS.

GAUGE LENGTH EXTENSION KITS

1.5-meter Extension Kit51705650

Adds 1.5-meter (5') extension to gauge length of strainmeter. One or more kits can be added to the strainmeter. However, it is recommended that the total distance between anchors does not exceed 6m. Assembly requires PVC-ABS cement.

3-meter Extension Kit51705660

Adds 3-meter (10') extension to gauge length of strainmeter. One or more kits can be added to the strainmeter. However, it is recommended that the total distance between anchors does not exceed 6m. Assembly requires PVC-ABS cement.

SIGNAL CABLE

Signal Cable50613527

Shielded cable with seven 22-gauge tinned-copper conductors and polyurethane jacket. This cable is used with either single or double sensor strainmeters.

Universal Terminal Box57711600

Provides connections for 12 sensors and an indicator. Sensors selected by rotary switch. Weatherproof fiberglass box measures 290 mm wide x 345 mm high x 135 mm deep.

READOUTS AND DATA LOGGERS

Compatible readouts include the Extensometer Indicator (See column at right) and the DataMate MP (See separate datasheet).

Compatible data loggers include the Campbell Scientific CR10X. Eight double-sensor strainmeters or sixteen single-sensor strainmeters can be connected to each AM16/32 multiplexer. See separate data sheet for details.



EXTENSOMETER INDICATOR

Extensometer Indicator51810100

Portable indicator for reading potentiometers used in soil strainmeter and sometimes in rod extensometers. Displays readings, but does not record them. Includes battery, charger, and jumper cable. Specify plug type needed for charger. Also specify if you are using the universal terminal box, since it requires a special jumper.

Displayed Units: Percent of full scale.

Resolution: 0.01% of full scale.

Display: Large, backlit 4.5 digit LCD with heater for cold weather operation.

Selector Switch: Provides switching to eight different sensors when connected to suitably wired signal cable.

Batteries: Rechargeable 6 volt, 6Ah lead-acid battery. Batter life is 12 hours with fully charged battery. LCD heater reduces operating time up to 50% when temperature is below 5°C (40°F).

Environmental Limits: -20 to 50°C (-4 to 122°F). Splashproof, non-submersible. Connector socket is waterproof when capped or in use.

Dimensions: 127 x 178 x 178 mm (5 x 7 x 7").

Weight: 3.5 kg (7.5 lb).