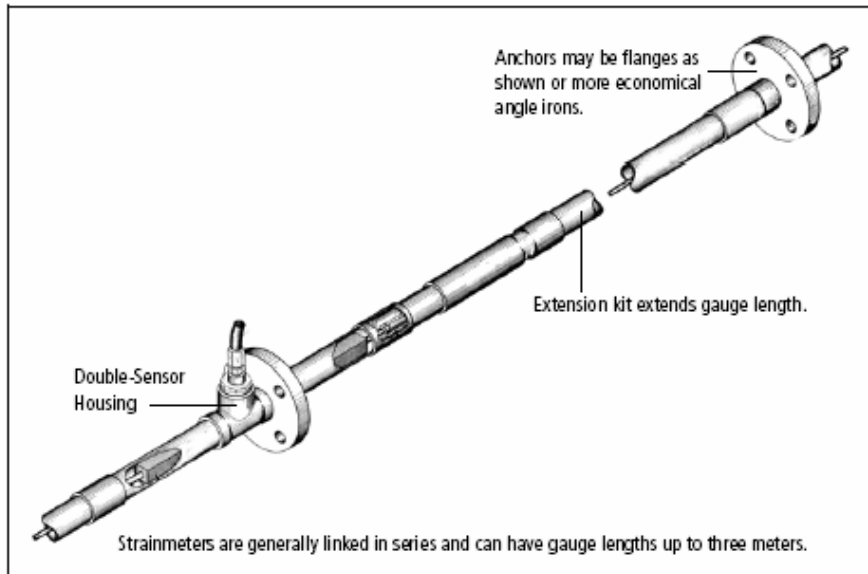




Soil Strainmeter



Applications

Typical applications for soil strainmeters include:

- Monitoring horizontal strain in embankment dams.
- Monitoring tension cracks in earth structures.
- The stainless steel version can be used in rockfill dams.

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 sensor is available as a double sensor or a single sensor. The double-sensor provides potential savings on cable costs.

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.

Standard or Stainless: The standard strainmeter is designed for use in soil. The stainless strain-meter is designed for use in rockfill dams.



STANDARD SOIL STRAINMETER

- Single-Sensor Strainmeter51705600
- Double-Sensor Strainmeter.51705620

Single-Sensor components include one sensor housing with with one potentiometer, one stainless steel all-thread rod, telescoping PVC pipe, and two anchors. Signal cable is ordered separately.

Double-Sensor components include one sensor housing with two potentiometers mounted back to back, two stainless steel all-thread rods, telescoping PVC pipe, and three anchors. Signal cable is ordered separately.

Gauge Length: Gauge length for each sensor 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 (6").

Sensor Linearity: ±0.3% FS.

Resolution: 0.01% FS with extensometer indicator.

Materials: PVC Plastic and Stainless Steel.

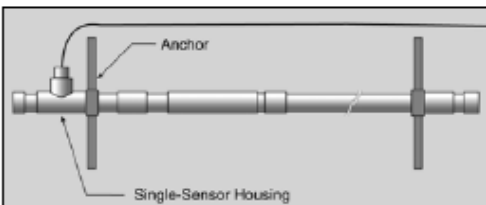
GAUGE LENGTH EXTENSION KITS

- Standard 1.5m Extension Kit.51705650

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 6 meters. Assembly requires PVC-ABS cement.

- Standard 3m 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 6 meters. Assembly requires PVC-ABS cement.



STAINLESS STRAINMETER

- Single-Sensor Strainmeter 91707610
- Double-Sensor Strainmeter 91707620

Single-Sensor components include stainless steel housing with one potentiometer, one stainless steel all-thread rod, telescoping stainless steel pipe, and two steel anchors. Signal cable is ordered separately.

Double-Sensor components include stainless steel housing with two potentiometers mounted back to back, two stainless steel all-thread rods, telescoping stainless steel pipe, and three steel anchors.

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 (6").

Sensor Linearity: ±0.3% FS.

Resolution: 0.01% FS with extensometer indicator.

Materials: Stainless Steel.

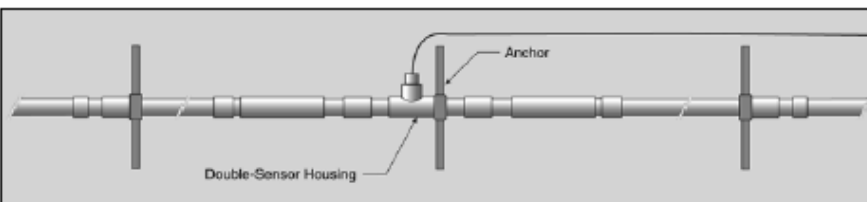
STAINLESS EXTENSION KITS

- Stainless 1.5m Extension Kit 91707630

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 6 meters.

- Stainless 3m Extension Kit 91707640

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 6 meters.



SIGNAL CABLE

- Signal Cable50613524

Shielded cable with four 22-gauge, tinned copper conductor with polyurethane jacket.

- Double-Sensor Signal Cable50613527

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

- 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.



EXTENSOMETER INDICATOR

- Extensometer Indicator51810100

Portable indicator for reading potentiometers used in soil strainmeter and rod extensometers. Includes battery, charger, and jumper cable. Specify charger and jumper.

Displayed Units: Percent of full scale.

Resolution: 0.01% of full scale.

Display: Large, backlit 4.5 digit LCD.

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

Batteries: Rechargeable 6 volt, 6Ah lead-acid battery. Battery life is 12 hours.

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).

DATA LOGGERS

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