

SOIL EXTENSOMETER

MODEL EDS-92



INTRODUCTION

The Encardio-rite model EDS-92 extensometer is used for monitoring displacement between two surfaces that may shift with respect to each other with time. The soil extensometer finds major application in the measurement of lateral strains and settlement in or beneath earth and rock fill embankments; and in dams. It is used in measurement of foundation movements and controlling of natural and cut slopes. The displacement of retaining walls, bridge piers and abutments can also be monitored by the soil extensometer. It also finds application in the measurement of displacement across construction joints in concrete, and across joints and faults in rock. The extensometers are usually installed in approximately 500 mm wide x 600 mm deep trenches.

FEATURES

- Reliable, accurate and simple to read.
- Suitable for remote reading of displacement.
- Probe is robust, care being given to protect all components and sub-assemblies from ingress of water and corrosion.
- Range upto 100 mm of displacement.
- Easy to install.
- Reasonably priced

APPLICATION

- Horizontal movement in foundations and embankments.
- Movement of natural and cut slopes, quarry and mining excavations.
- Displacement of retaining walls, piers and abutments.
- Displacement across construction joints in concrete and fault in rocks.

OPERATION

The soil extensometer uses a vibrating wire sensor for monitoring displacement. The system consists of a sensor assembly with flanges that is mounted with adaptors, adjustment unit, sockets and extension rods between two anchors to monitor the horizontal movement of surrounding soil. The system is enclosed in telescopic PVC tubing with proper 'O' ring seals to eliminate friction between the rods and surrounding soil and to prevent any ingress of water.

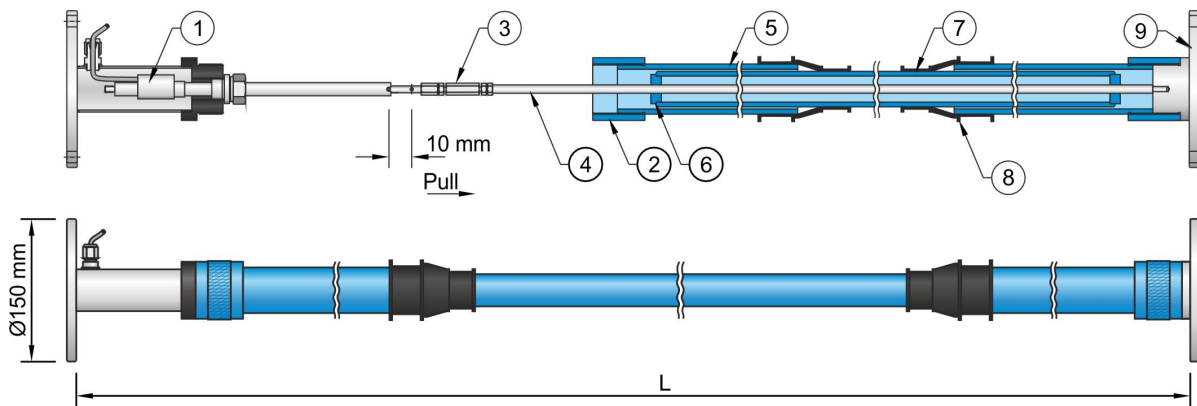
The extensometer system is supplied with different gage lengths (gage length is the distance between two anchors).

A number of extensometer units can be connected in series to measure incremental displacements over large distances. Movement of relative position between two anchor channels at the ends of the soil extensometer is representative of mass movement. The relative movement between the anchors causes change in output of the vibrating wire sensor. The displacement sensor converts the mechanical displacement to an electrical frequency output.

The frequency output can be accurately measured by any vibrating wire readout unit. The data can also be automatically collected at desired frequency, stored and transmitted to remote server by a suitable datalogger. The initial reading of the sensor is taken as the base. Subsequent readings are then compared with the initial reading to determine the magnitude of change in displacement across the opening.

SPECIFICATIONS

| | |
|--------------------------|--|
| Sensor type | Vibrating wire |
| Range (mm) | 15, 25, 50, 100, specify |
| Accuracy | ± 0.2 % fs normal ± 0.1 % fs optional |
| Sensitivity | ± 0.02 % fs |
| Non linearity | ± 0.5 % fs |
| Temperature limit | - 10° to 80°C |
| Thermistor | YSI 44005 or equivalent (3 kOhms at 25°C) |



| Sl. # | Description | Qty | Sl. # | Description | Qty |
|-------|--------------------------------|-----|-------|--------------------------------|-----|
| 1 | Sensor flange assembly | 1 | 6 | Guide bush | 2 |
| 2 | Socket | 1 | 7 | Telescopic protective tubing-B | 1 |
| 3 | Adjustment unit | 1 | 8 | Rubber boot | 4 |
| 4 | Extension rods | 1 | 9 | End flange assembly | 1 |
| 5 | Telescopic protective tubing-A | 2 | | | |