



# ENCARDIO RITE



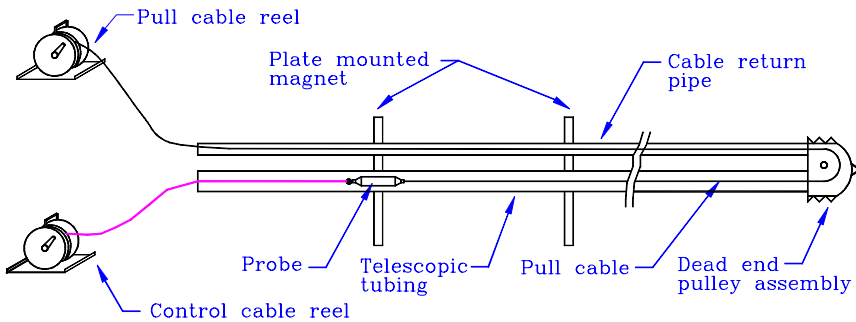
## MAGNETIC EXTENSOMETER SYSTEM

**Model EDS-91 - for horizontal and vertical movement**

### OPERATION

Ring magnets positioned on a central access tube are fixed in the ground at locations where displacement is to be monitored. A probe incorporating a Reed switch is made to travel within the access tube to sense the position of magnets outside the access tube. The Reed switch closes on entering a magnetic field and activates a buzzer or an indicator light in the signal receiving instrument. The cable of the probe is marked at suitable intervals for measuring the location of each magnet from the end of the access tube.

For vertical displacement monitoring where it is also required to take inclinometer readings, grooved access tubes are used.



**Horizontal movement system with dead end pulley assembly**

### INSTALLATION

Magnet extensometer system for monitoring vertical or horizontal movement in fills, embankments, down or horizontal holes, employ telescopic access tubes with plate mounted, ring type or spider magnets.

Ring type magnets are used with aluminum grooved tubes. Spider magnets are generally pushed down over access tubes or released out in the correct position.

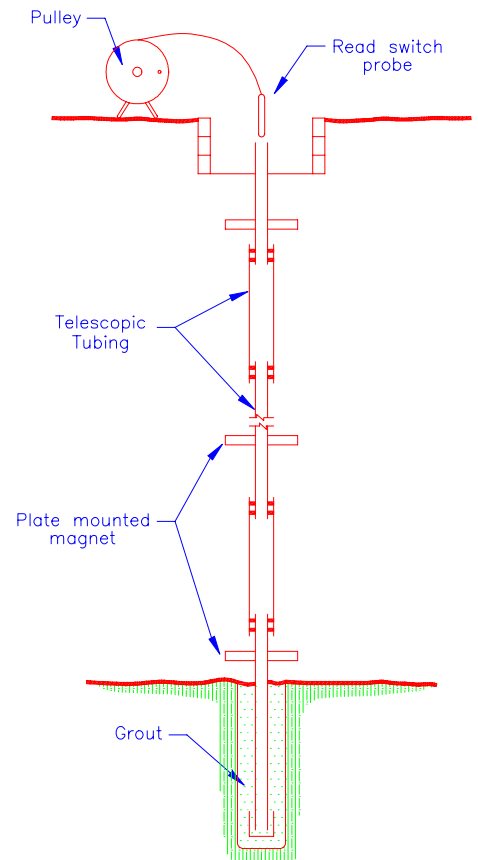
For vertical installation in a earth fill, 1.5 m or 3 m long tubes are connected to each other, one by one, with telescopic couplings of suitable length depending upon the expected displacement, to keep pace with the fill operation. After adding each length of tube, an end cap is fitted to prevent entry of dirt while the next layer of fill is being placed. The magnets are located centrally on the lower diameter telescopic tube.

### FEATURES

- ◆ Reliable, accurate and simple to read.
- ◆ Any number of points can be monitored.
- ◆ Probe is portable and can be used at many locations; only the access tubes and magnets are permanently installed.
- ◆ Options available on type of probes, access tubes and magnet assemblies.
- ◆ Low cost, rugged and easy to install.

### APPLICATIONS

- ◆ Horizontal and vertical movement in foundations and embankments.
- ◆ Movement of natural and cut slopes, quarry and mining excavations.
- ◆ Displacement of retaining walls, piers and abutments.
- ◆ Displacement around tunnels and underground cavities.



**Vertical displacement monitoring**

For horizontal installations, similar telescopic access tubes as described above are laid at the base of the trench, with magnet plates embedded in the trench floor. Care should be taken during back filling to prevent disturbance of the equipment. For monitoring a dead end hole, a pull cable with optional reel, cable return pipe and a dead end pulley assembly is available. Alternatively, for small length holes, a push rod may be used.



### 1. Guide tubing and coupling

- EDS-91/1.1:** PVC access tubing, 25 mm i.d. and 34 mm o.d., 3 m long, fitted with 'O' rings at both ends. Weight around 1.75 kg.
- EDS-91/1.2:** Extension/compression PVC access tubing for above, around 37.5 mm i.d. and 5 mm wall thickness, 1 m long. Weight around 0.9 kg.
- EDS-91/1.3:** Aluminum grooved tubing, 75 mm i.d., 3 m long with 300 mm long expandable coupling (150 mm compression). Maximum o.d. 91 mm. Weight per set around 6 kg.
- EDS-91/1.4:** ABS grooved tubing, 58 mm i.d., 70 mm o.d., length 3 m with expandable coupling, (150 mm compression).
- EDS-91/1.5:** PVC cable return pipe around 17 mm i.d. and 20 mm o.d., 3 m long with integral external flared coupling. Weight around 0.4 kg.

### 2. Signal receiver and probe

**EDS-91/2.1:** The probe, 22 mm  $\Phi$  x 150 mm long has a Reed switch encapsulated inside it in silicon rubber for protection against shock, corrosion and ingress of water. It is connected to the signal receiver consisting of a reel with a battery pack and buzzer, by a flat measuring tape.

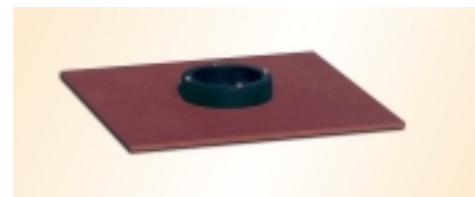
The measuring tape with a mounting fixture is coupled to the probe for depth measurement. Accuracy of measurement is  $\pm 1\%$ . The probe is available in tape length of 30, 60 or 100 m.

**EDS-91/2.2:** For centrally locating probe in larger diameter access tubing, a 100 mm long adapter of diameter 6 mm less than that of the access tubing is available.

**EDS-91/2.3:** Alternatively to EDS-91/2.2, an inclinometer type adapter with two fixed wheels and two spring loaded wheels with a longitudinal distance of 30 cm is available.

### 3. Magnet targets

**EDS-91/3.1:** Disc magnet 300 mm square with center hole to slide over access tubing.



Disc magnet

**EDS-91/3.2:** Ring magnet 110 mm  $\Phi$  x 25 mm width for grooved aluminum tubing.

**EDS-91/3.3:** Spider magnet for pushing down over the access tube or for springing out on correct position



Spider magnet

\* Specifications are subject to change without notice

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