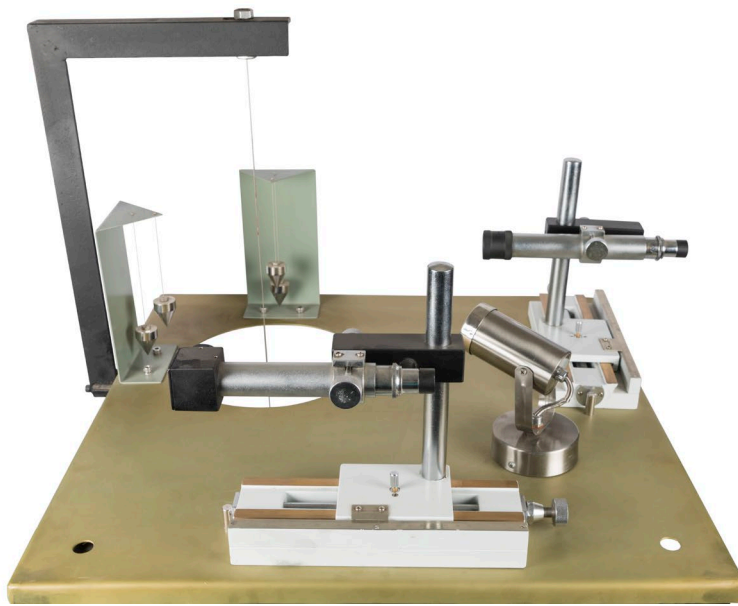


NORMAL & INVERTED PLUMBLINE

MODEL EDS-50/51



OVERVIEW

Encardio-rite normal and inverted plumb lines are simple and reliable systems that are widely used in civil engineering projects where highly accurate long-base rotation/tilt/relative displacement measurements are needed, like in high rise buildings, concrete and masonry dams, etc.

APPLICATION

- Robust and easy to install.
- Reliable, accurate and simple to read.
- Proven technology and excellent design.
- Regular frequent monitoring with ease.
- Accuracy better than with theodolite survey

NORMAL PLUMB LINE

Model EDS-50 normal plumb line consists of a plumb line wire fixed through a collet arrangement centered on a rectangular collet bar at the top of the structure/dam. A heavy weight is clamped at the lower end of the wire, which is damped in a tank filled with oil, to prevent any to & fro oscillatory movement of the plumb due to vibration or shock.

A tilt in the structure/dam brings about a shift in the weight which is measured by:

- Portable optical readout system , or
- Automatic readout unit with remote real time monitoring facility



INVERTED PLUMB LINE

Model EDS-51 inverted plumb line monitors displacement between the structure/dam base and rock foundation. The plumb wire is anchored between rock foundation (bottom of drilled hole) and float submerged in a water tank in the observation area. A tension is maintained in the plumb wire as the float is free to move. Water in tank acts as a damping medium. A tilt or displacement in the foundation brings about a shift in the float which is measured by readout systems mentioned above.

PORTABLE OPTICAL READOUT SYSTEM

The system employs two travelling telescopes (one each for X and Y axes) for measurement of displacement. The travelling telescopes are mounted at right angles to each other. This obviates the necessity of moving and realigning the telescope, plumb line and reference plumb every time a reading has to be taken in the X and Y axes. Two travelling telescopes not only cut short the observation time but also minimize any chance of error.

To facilitate observation from the same direction, one of the telescopes is provided with a right angle prism before the objective lens.

ELECTRONIC READOUT UNIT

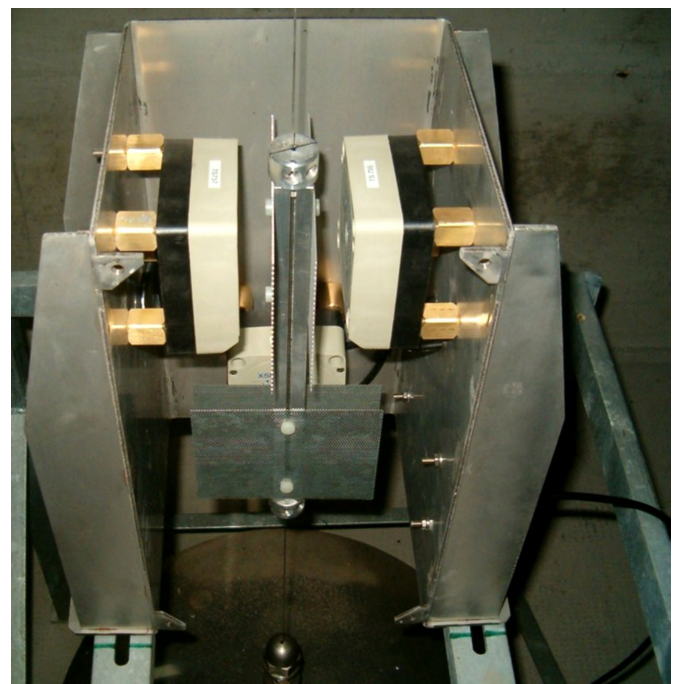
Encardio-rite model EPR-01S, an automatic readout unit for plumb lines, is very precise providing an accuracy of 0.01 mm. It uses two contactless inductive sensors that give position of the pendulum wire in two directions.

Pendulums already in situ can be measured by the readout unit without additional modification. It only requires a target to be added to the pendulum wire for the device to be effective.

The transducer output is a twin wire 4-20 mA allowing the signal to be transmitted over long distances without any adverse effect.

Model EPR-01S readout unit is equipped with a specific temperature gage that provides proper reference when temperature compensation is required. An additional transducer for automatic compensation of the wire rotation is mounted on one of the two axes.

The device is constructed from stainless steel and is maintenance free, designed to work in hostile environment. Installation is simple and quick.



Inside view of model EPR-01S automatic readout unit with targets and transducers



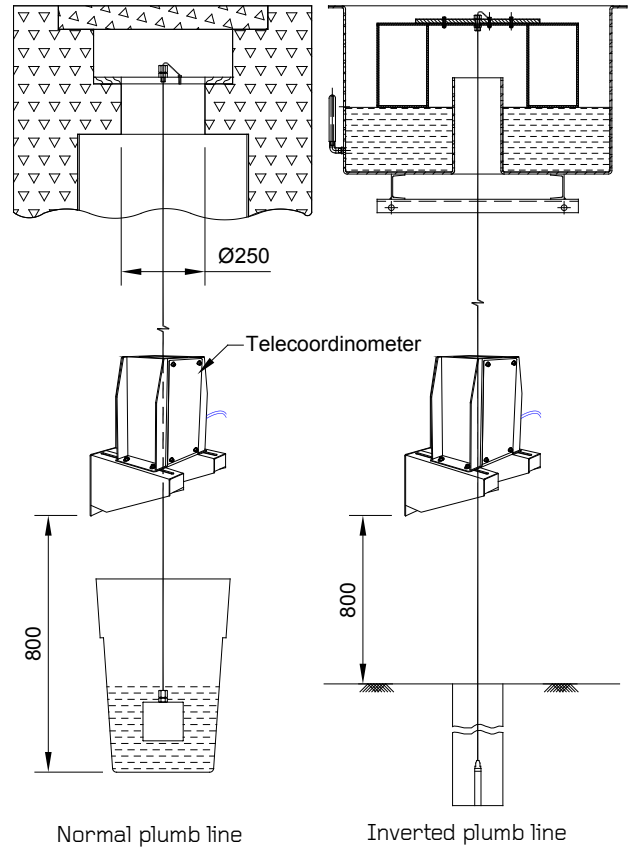
SPECIFICATIONS

Normal plumb line

Measuring range	± 75 mm
Table size	625 mm x 625 mm
Stainless steel wire	1 mm dia x 60 m long (other lengths available)
Wire suspension	Collet on a rectangular bar grouted at the top
Suspension wt.	10 kg
Tank (PVC)	40 litre capacity
Damping oil	S.A.E. 40

Inverted plumb line

Measuring range	± 50 mm
Table size	625 mm x 625 mm
Stainless steel wire	1 mm dia x 60 m long (other lengths available)
Wire suspension	Collet on a rectangular bar grouted at the top
Suspension wt.	8 kgf
Tank (Fiber glass)	800 mm φ x 500 mm long
Float material	PVC



Typical mounting arrangement of normal and inverted plumb lines with model EPR-01S automatic readout unit.

SPECIFICATIONS

Portable readout system

Telescope focus range	250 mm to 500 mm
Resolution	0.01 mm
Accuracy	0.1 mm

Model EPR-01S automatic readout system

Accuracy	0.01 mm
Repeatability	0.05% fs
Supply	24 Vdc
Output	4-20 mA
Operating temperature	-25 to+70°C
Protection	IP67
Installation	Wall or floor

*All specifications are subject to change without prior notice