



ENCARDIO RITE



HORIZONTAL INCLINOMETER SYSTEM

MODEL EAN-25M-H

INTRODUCTION

The Encardio-rite model EAN-25M-H horizontal inclinometer is a highly accurate instrumentation system, specially designed for the measurement of vertical movements including settlement under structures and tanks, settlement and heave of foundations, embankments etc.. It incorporates the latest technology in having built in data storage facilities and capability of analyzing the stored data.

The EAN-25M-H horizontal inclinometer system provides significant quantitative data on magnitude of settlement/heave of foundations and its variations with time. It also provides the pattern of deformation, zones of potential danger and effectiveness of construction control measures undertaken.

OPERATION

The access tubes are fixed to each other and installed in horizontal borehole. The EAN-25/2M-H inclinometer probe is then made to pass through the entire borehole taking readings at fixed distances from one side. During the process, a servo accelerometer probe senses the inclination of the access tube in two planes at right angles to each other. Another set of readings at same intervals are taken from the other end thus reversing the probe to eliminate any offset error.

A set of initial base reading, taken at given intervals within the access tube, forms the reference datum. All subsequent readings are taken at identical intervals over a period of time. The settlement or heave is calculated by using the formula $L(\sin \theta_1 - \sin \theta_0)$ where L is the gage length, θ_1 is the current angle of inclination, θ_0 is the initial angle of inclination.

A complete profile of the trench/borehole can be obtained by summing the

FEATURES

- ◆ Reliable, accurate and proven technology.
- ◆ Storage of readings with time and date possible with logger readout.
- ◆ Rugged and waterproof system.
- ◆ Easy to use and take readings as there are no liquids involved.
- ◆ Provides complete profile of the differential settlement or heave taking place over a period of time.

APPLICATIONS

- ◆ To accurately measure vertical movement including settlement and heave of storage tank, structures, landfills, etc..
- ◆ Settlement monitoring of bridge abutments and piers.
- ◆ Construction control, stability investigation and monitoring of road and dam embankments, etc.

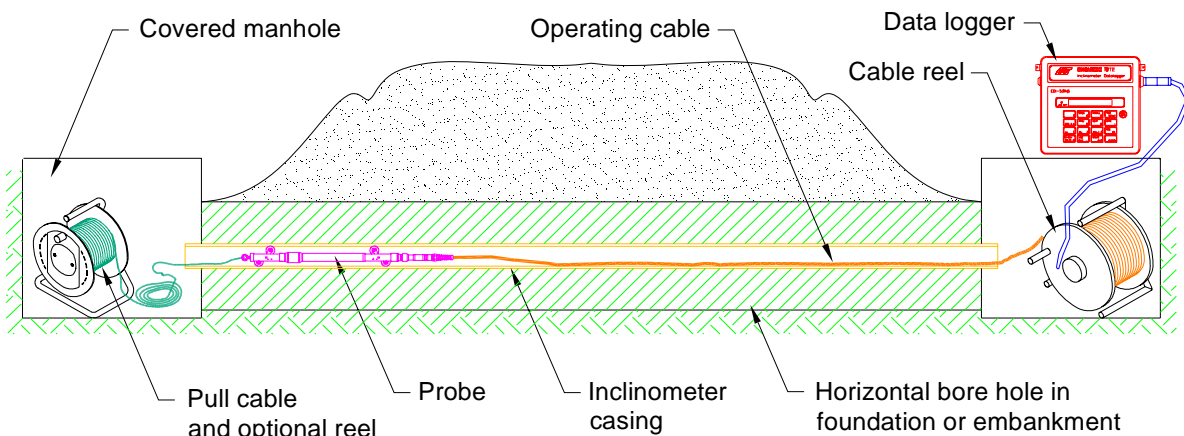
successive readings. By comparing these profiles, the settlement or heave of the borehole over a period of time may be determined.

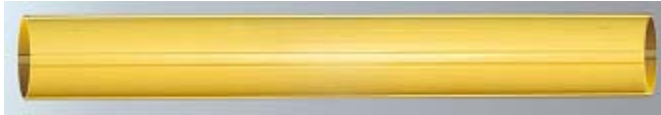
DESCRIPTION OF SYSTEM

The Encardio-rite model EAN-25M-H horizontal inclinometer system basically consists of five components:

- ◆ Access tube and fittings
- ◆ Inclinometer probe
- ◆ Interconnecting cable with reel and grip
- ◆ Pulling cable with optional reel
- ◆ Data logger

EAN-25/1 Access tube and fittings: The access tube has longitudinal keyways,





specially produced to close tolerances. The wheels of the inclinometer probe can run smoothly inside these keyways. The access tubes are 3 m in length unless otherwise specified by the customer. These are provided with fixed coupling. The design of these couplings ensures that correct alignment of keyways is maintained throughout the depth of the gage well.

EAN - 25/1.1 ABS self aligning access tube: Self aligning ABS tubing, 70 mm o.d., 58 mm i.d., length 3 m

EAN - 25/1.2 ABS fixed coupling: ABS fixed coupling, 77 mm o.d. x 160 mm length.

EAN - 25H/1.4 End cap for inclinometer cable reel end: End cap with fixed pin.

EAN-25H/1.5 End cap for pull cable reel end: End cap with removable pin.

EAN-25/1.6 Pop rivets for ABS tubing: In packets of 100 numbers.

EAN-25/1.7 Pop rivet gun: Hand held manually operated.

EAN-25/1.8 Power drill: 230 V 50 Hz operation power drill with two 3.2 mm ϕ drill bits.

EAN-25/1.9 Mastic tape: 50 mm wide x 10 m long mastic tape.

EAN-25H/1.10 Sealing accessories: 50 mm wide x 65 mm long BOPP tape.

EAN-25/2M-H TILT SENSING PROBE

EAN-25H/2.1 Inclinometer probe: It is of stainless steel construction designed to take measurements within horizontally installed inclinometer casing. It is biaxial and is fitted with two pairs of pivoted sprung wheels which can freely rotate on individual bearings. The rear end of probe has provision to fix an eye bolt used to connect the pull cable when taking readings. The standard gage length between the wheels is 500 mm. A six pin connector is provided for connection to the cable.

EAN-25H/2.2 Dummy probe: It has the same dimension as the actual probe. It is used for checking the gage well. Cord length is same as cable length in the actual probe.

EAN-25H/2.3 Calibration check jig: It enables verification of calibration of the data logger for known angles of tilt of the sensing probe.

EAN-25/3M-H INTERCONNECTING CABLE

EAN-25H/3.1 Operating cable and cable reel: PUR sheathed six core 30/0.2 ATC cable with central high tensile straining member, graduated at every 0.5 m. Length as specified by the customer. A six pin connector is provided for connecting to the probe. The cable reel comprises of a plastic winding reel on tubular metal frame to hold the specified length of cable.



EAN-25H/3.2 Pulling cable with optional reel: It is used to pull inclinometer probe from the other end. This cable is always left inside the casing, stretched throughout the length, hooked to the end caps.

EDI-53INS DATA LOGGER

The data logger is compatible with the inclinometer probe. It is battery operated with an easy to read display. It is housed in a rugged and weather proof enclosure.

The data logger has built-in data storage facility and is capable of analyzing the stored data. It is supplied complete with software to transfer the data to a PC for further processing or for archive purposes.

SYSTEM SPECIFICATIONS

Probe specifications

Measuring range	$\pm 15^\circ$ to horizontal
Resolution	± 0.025 mm/500 mm
Distance between wheels	500 mm
Operating temperature	0°C to 80°C
System accuracy	± 4 mm/30 m
Probe casing	Stainless steel

Specifications are subject to change without notice.

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DATA SHEET 1070-08 R2