ENCARDIO RITE

TILT METER

MODEL EAN-90M/92M

OVERVIEW

The Encardio-rite model EAN-90M/92M tilt meter is suitable for monitoring of inclination and vertical rotation in structures. It is a high resolution tilt meter, is rugged in construction and has excellent temperature stability.

Tilt changes in structures may be caused due to construction activities such as excavation; tunneling and de-watering that affect the ground that supports the structure. Changes in tilt may also result from loading of a structure, such as loading of a dam during impoundment, loading of a diaphragm wall during excavation or loading of a bridge deck due to wind and traffic. Data from the tilt meter provides early warning of threatening deformations, allowing time for corrective action to be taken or if necessary, for safe evacuation of the area.

DESCRIPTION

Model EAN-90M tilt meter consists of a basic sensor, mounted inside stainless steel housing. The sensor output is 4 V nominal at ± 15°. This output can be carried over long distances without any signal degradation. The sensor provides a relatively low cost system which offers excellent resolution, long term stability and a low thermal sensitivity.

The tilt meter (uniaxial and biaxial) is fixed on to a vertical or horizontal surface by means of an adjustable bracket and expandable anchor.

Movement of the structure causes change in tilt of the tilt meter, which results in change in output of the sensor. Measurements can be made on horizontal or vertical surfaces. Subsequent sets of readings show how the structure is behaving and will give an indication of permanent deformations as time progresses.

Model EAM-92M tilt meter is available with SDI-12 interface such that all sensors can be connected through single bus cable to datalogger.

SDI-12 bus cable from different tilt meters can also be connected to same datalogger. Although tilt meter with SDI-12 interface are a bit costlier, the savings in cable costs and the cost of the required multiplexers in the datalogger, reduces this increase to a large extent.

FEATURES

- Suitable for severe environment.
- Provides reliable and high resolution readings.
- Rugged & robust construction and excellent temperature stability.
- Easy to install and take readings.
- Readings can be taken by remote datalogger.

APPLICATIONS

- Monitoring vertical rotation of retaining walls.
- Monitoring inclination and rotation of dams, piers and piles, etc.
- Monitoring stability of structures in landslide areas.
- Monitoring tunnels for convergence and other movements.
- To evaluate performance of bridges and struts under load. To monitor deformation of embankments, retaining walls etc.

Mounting variants

Model EAN-90M/92M tilt meter is supplied with standard mounting bracket suitable for wall mounting/vertical surface. However, options are also available on request for mounting the tilt meter on a roof/suspended from ceiling or on the floor.

READOUT/DATALOGGER

Model EAN-90M tilt meter can be read by Encardio-rite model EDI-53UTM portable digital read-out unit. The readings can also be read or logged at a remote location by an automatic data acquisition system like Encardio-rite model EDAS-10. In the latter case also, EDI-53UTM is recommended for taking readings while installation and for troubleshooting until the tilt meter is connected to DAS.

Model EAN-92M tilt meter data can be monitored through automatic data acquisition system like Encardio-rite model EDAS-10.

Breakout box

Breakout box is used to read the EAN-90M tilt meter with EDI-53UTM readout unit. It contains a six pin weather proof circular connector that provides fast and easy connection of the 6 core cable of tilt meter to EDI-53UTM readout unit. To read bi-axial tilt meters, a switch is provided for switching and taking readings from both axis. It also is equipped with lightning protection. 1200-12 R02

Breakout box can later on be used to extend the cable of tilt meter to DAS. Even after connection to DAS, the breakout box has facility to allow readings being taken with EDI-53UTM, if required for troubleshooting.

SENSOR SPECIFICATIONS

Sensor	Uniaxial, Biaxial also available on request
Standard range	± 15°
Output(nominal) (Model EAN-90 M)	4 V at 15° Proportional to Sin θ of angle
Output (Model EAN-92 M)	Serial output
Sensitivity	± 10 arc second
Accuracy[1]	± 0.1% fs
Temperature range	-20°C to 80°C
Sensor dimension	32 mm dia x 260 mm length
Bracket dimension (wall mounting)	65 mm x 65 mm x 40 mm, 8 mm thickness
Weight	0.95 kg (sensor with bracket)

[1] *As tested under laboratory conditions*

ORDAERING CODE

EAN-90M/92M-U Uniaxial tilt meter

EAN-90M/92M-B Biaxial tilt meter

** All specifications are subject to change without prior notice.*

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