

TILT METER

MODEL EAN-92M/90M

DATASHEET



OVERVIEW

The Encardio Rite cylindrical tilt meter range includes model EAN-92M digital tilt meter and model EAN-90M analog tilt meter, both designed for precise monitoring of tilt and vertical rotation in various structural and geotechnical applications. These sensors are essential for monitoring structural health and stability in buildings, bridges, tunnels, dams, and other critical infrastructure. Utilizing MEMS (Micro-Electro-Mechanical Systems) technology, these tilt meters offer high sensitivity, stability and reliability, making them ideal for long-term monitoring in challenging environments.

These tilt meters are ideally suitable for environments experiencing significant mechanical stresses due to activities such as excavation, tunneling, de-watering, or operational loads like dam impoundment and heavy traffic on bridges.

Configurable as either uniaxial or biaxial, they can be easily installed on both vertical and horizontal surfaces using a standard adjustable bracket and expandable anchor. Enhanced mounting options are available upon request to meet specific installation needs extending the functionality and versatility of the EAN-92M and EAN-90M tilt meters, ensuring reliable performance in diverse monitoring scenarios.

FEATURES

- **High resolution and accuracy:** The MEMS tilt meters deliver precise and high-resolution readings, crucial for monitoring minute changes in structures.
- **Dual output options:** Available in both analog (voltage) and digital (SDI-12) output to provide versatile solutions for integration into different monitoring systems.
- **Robust stainless steel construction:** Built to endure harsh environmental conditions, ensuring durability and long service life
- **Hermetically sealed:** Sealed under a vacuum of 0.001 Torr, providing superior protection against environmental elements and ensuring long-term reliable performance.
- **Waterproof design:** IP68 rated, suitable for submerged and outdoor installations.
- **Ease of installation:** Designed for quick and hassle-free installation on various structural elements.
- **Versatile datalogging:** Compatible with various readout units for manual data collection. For continuous monitoring, it can be connected to a suitable datalogger, allowing for data acquisition at desired frequencies.

Encardio Rite offers a range of NexaWave dataloggers equipped with GSM/GPRS or RF communication capabilities, ensuring reliable and efficient data transmission.
- **Infrastructure data intelligence platform:** Transmit data to a local or cloud server hosting the **Proqio** platform for 24/7 insights. **Proqio** enables efficient data processing, analysis and real-time visualization. Benefit from instant alerts for critical events and automated reports, supporting informed decision-making.
- **Cross-compatibility:** The sensor can work with any manufacturer's Dataloggers and Data Management Systems.

PRODUCT OFFERINGS

Model EAN-92M digital tilt meter

The EAN-92M tilt meter features an SDI-12 digital interface, allowing for enhanced data integration and easier connection with other digital sensors.

This digital output ensures improved accuracy, data integrity, and is ideal for use in networked monitoring systems, supporting low power consumption and long-distance data transmission without signal loss.

Model EAN-90M analog tilt meter

The EAN-90M tilt meter is equipped with an analog output, providing a 4 V signal at $\pm 15^\circ$. It is straightforward to interface with but may be susceptible to signal degradation over long distances and electrical noise.

Breakout box: It is designed specifically for reading the EAN-90M analog tilt meter using Encardio Rite's EDI series portable readout unit.

It features a six-pin weatherproof connector that ensures a secure and convenient connection to the readout. A toggle switch allows users to alternate between the two axes when reading a biaxial sensor.

This box can also be used to extend the signal cable to a Data Acquisition System (DAS). The EDI series readout unit can still be used, if troubleshooting is required.

Mounting variants

The EAN-92M and EAN-90M tilt meters are supplied with a standard mounting bracket suitable for wall mounting or installation on vertical surfaces. Additional mounting options are available upon request, including configurations for roof mounting/suspended from the ceiling or floor mounting, depending on specific application requirements.

SPECIFICATIONS

Sensor	Uniaxial, Biaxial
Standard range	$\pm 15^\circ$
Output (nominal) (Model EAN-90M)	4 V at 15° Proportional to $\sin \theta$ of angle
Output (Model EAN-92M)	SDI-12 Serial output
Sensitivity	± 10 arc second
Accuracy ¹	$\pm 0.1\%$ fs
Resolution	± 0.05 mm/m (8 arc seconds)
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)
Water resistance	Up to 100 mwc
¹ As tested under laboratory conditions	

ORDERING INFORMATIONS

EAN-92M-U Uniaxial tilt meter
EAN-92M-B Biaxial tilt meter

EAN-90M-U Uniaxial tilt meter
EAN-90M-B Biaxial tilt meter

*All specifications are subject to change without prior notice

DATASHEET | 1200-12 R06



Dams



Mining



Tunnels



Transportation



Construction



Bridges



Landslides



Energy



Environmental
Monitoring



Pipelines



Structural Health
Monitoring



Smart
Cities