DATASHEET

MEMS Portable Tilt Meter

The portable tilt meter system has a demountable sensor and is designed for applications where a large number of measuring points are to be observed. Portable MEMS Tilt Meters use a MEMS inclinometer to measure tilt in either one or two axial planes perpendicular to the surface of the base plate

GEOSENSE

MEMS Portable Tilt Meter

Overview

Portable MEMS Tilt Meters use a MEMS inclinometer to measure tilt in either one or two axial planes, perpendicular to the surface of the base plate. Depending on the model, the output is an analog DC signal or digital output and is directly proportional to the sine of angle of tilt.

In the horizontal position the DC output is zero. Portable MEMS Tilt Meters require the tilt meter to be placed in a reproducible position on a reference plate attached to the surface being monitored. The portable tilt meter system has a demountable sensor and is designed for applications where a large number of measuring points are to be observed.

Portable MEMS Tilt Meter systems consist of the tilt meter, interconnecting cable, stainless steel tilt plates, and the readout instrument. Tilt plates are bolted or bonded to the structure to accurately, and repeatedly, locate the sensor.

APPLICATIONS

- Monitor tilt of retaining and building walls
- Tilt of concrete dams
- Landslide monitoring
- Ground subsidence
- Building safety along adjacent excavations
- Applications where the failure mode is expected to have a rotational component
- Differential compression in earth dams and embankments
- Observation of benches and berms in open pit mines
- Bridge piers

FEATURES

- Uniaxial or biaxial sensors available
- Horizontal or vertical applications
- Readout units and portable sensor are lightweight and easy to use
- Data logger compatible
- High accuracy and repeatability
- Operational range and temperature coefficients exceed that of bubble sensor devices

CE MEMS

MEMS Portable Tilt Meter

Specifications

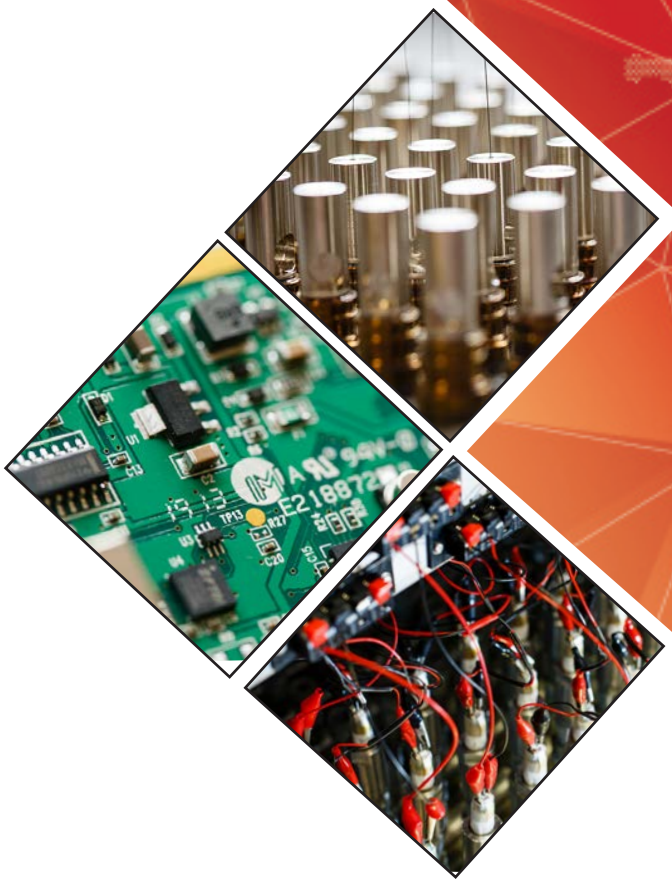
ITEM	DESCRIPTION
Range	±15° (other ranges upon request)
Axis	Uniaxial & Biaxial
Accuracy[1] (analog)	±0.005° (±18 arc sec ±0.1mm/m) ±0.017% FS
Accuracy[2] (digital)	±0.004° (±13.5 arc sec ±0.07mm/m) ±0.0125% FS
Resolution (analog)	0.0019° (7 arc sec, 0.03 mm/m) 0.007% FS
Resolution (digital)	0.0005° (2 arc sec, 0.01 mm/m) 0.007% FS
Repeatability (analog)	±0.002° (±7.2 arc sec ±0.03 mm/m) ±0.007% FS
Repeatability (digital)	±0.002° (±7.2 arc sec ±0.03 mm/m) ±0.007% FS
Sensor	MEMS (Micro-Electro-Mechanical Systems) Inclinometer
Material	Stainless steel / Aluminium NEMA 4X (IP65) weather proof enclosure
Weight	4.710 kg
TILT PLATE SPECIFICATIONS	
Material	316 stainless steel
Dimensions	140 OD x 63ID x 14 mm. 4 pegs equally spaced on 102 mm diameter
Weight	0.77 kg
Installation	Epoxy or mechanical, 4 x ¼" mounting holes on 102 mm diameter

OPTIONAL EQUIPMENT
Protective cover for tilt plates
Bonding compound for tilt plates and in-place sensors

CABLE TYPE
Type 800 - Multi-core with Braid

ORDERING INFORMATION
Range
Axis
Output
Mounting
Readout

[1] Readout dependent
[2] Using 3rd order polynomial



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V1.7 6/2023