



Portable MEMS Tilt Meter

MEMS
TILT & INCLINATION
SERIES

RST Portable MEMS Tilt Meter



RST Tilt Plate



Digital Portable Tilt Meter with Field PC2 Readout



Analog Portable Tilt Meter shown with the IC6800S Readout

The RST Portable MEMS Tilt Meter utilizes a MEMS tilt meter to measure tilt in either one or two axial planes perpendicular 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 placing the tilt meter in a reproducible position on a reference plate attached to the surface being monitored. It 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 tiltplates, and the readout instrument. Tilt plates are bolted or bonded to the structure to accurately, and repeatedly, locate the sensor. When not in use, the plates should be shielded from damage with an optional, UHMW plastic protective cover. Readout is achieved with the Portable Tilt Meter Readout, or with the Ultra-Rugged Field PC2 for the Digital Tilt Meter model.

tilt sensor specifications

ITEM	DESCRIPTION
Range	±15° (other ranges upon request)
Resolution (analog)	±5 arc sec. (±0.025 mm/m) (10Hz BW) (or better, readout method dependent)
Resolution (digital)	±2 arc sec. (±0.0006°) (0.01 mm/m)
Non-linearity (analog)	±0.05% F.S. (±0.0075°, 0.13 mm/m)
Non-linearity (digital)	±0.0125% F.S. (±0.002°) (0.03 mm/m)
Repeatability (analog)	±0.025% F.S. (±0.004°, 0.06 mm/m)
Repeatability (digital)	±0.0125% F.S. (±0.002°) (0.03 mm/m)
Sensor	MEMS (Micro-Electro-Mechanical Systems) Accelerometer, Biaxial
Material	Stainless steel / Aluminum NEMA 4X (IP-65) weather proof enclosure
Weight	10.38 lbs (4.710 kg)

tilt plate specifications

DESCRIPTION	SPECIFICATION
Material	316 stainless steel
Dimensions	5.5 in. OD x 2.5 ID x 0.95 (140 x 63 x 14 mm) 4 pegs equally spaced on 4 in. (102 mm) dia.
Weight	1.7 lbs (0.77 kg)
Installation	Epoxy or mechanical 4 x ¼ mounting holes on 4 in. (102 mm) dia.

ordering info

ITEM	PART #
Portable MEMS Tilt Meter - Analog (horizontal/vertical)	ICTS0004
Portable MEMS Tiltmeter - Digital Output (horizontal/vertical)	ICTS0005
Tilt Plate	ICTS0010
IC6800S Readout (for Analog model)	IC6800-S
Ultra-Rugged Field PC ² (Digital model)	IC32000-AR2-RSTS
UHMW Plastic Protective Cover	ICTS0008

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.

optional equipment

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

RST Instruments Ltd. reserves the right to change specifications without notice.

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