



Submersible
Tiltmeter (Bussed
version) shown
with Universal
Mounting Bracket.



PRODUCT CATEGORY:
INCLINOMETERS + TILT SENSORS



Submersible Tiltmeter (MEMS)

RST's Submersible Tiltmeters measure tilt in two axial planes perpendicular gravity vector. The tiltmeter is intended to be permanently installed to provide long term observation with maximum resolution and sensitivity, and conveniently accommodates for manual monitoring or remote data acquisition.

The system consists of an adjustable universal mounting bracket that can be installed vertically, horizontally, or at an angle, an interconnecting cable, and a data logger or readout instrument. The housing is IP68 rated up to 2 MPa. for maximum resistance against water ingress. The cables are securely encapsulated inside the housing with water-proof connectors to provide watertight performance at depths up to 200 meters submersion. Bussed and non-bussed versions are available to accommodate daisy chained and single point installations.

> APPLICATIONS

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| Monitor tilt of retaining and building walls. | Tilt of concrete dams. |
| Structural load testing. | Landslide monitoring. |
| Building safety along adjacent excavations. | Ground subsidence. |
| Various horizontal, vertical applications. | Bridge pier monitoring. |
| Observation of benches and berms in open pit mines. | Applications where the failure mode is expected to have a rotational component. |
| Installation of submerged pipelines. | Monitoring of offshore structures. |

> FEATURES

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|---|----------------------------------|
| Biaxial sensor. | High accuracy and repeatability. |
| Easy to install adjustable mounting bracket. | Cost effective. |
| Data logger and/or manual readout compatible. | Digital bus output. |
| Stainless steel housing. | Ingress Protection IP68 (2MPa). |
| Submersible. | |

SPECIFICATIONS

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|-----------------------------------|---|
| Range | ±30° |
| Resolution | ±0.0002° (0.004 mm/m) ¹ |
| Sensor Precision | ±0.0013° (0.02 mm/m) ¹ ±0.0005° (0.01 mm/m) ² |
| Sensor 24hr Stability | ±0.03 mm/m ¹ ±0.01 mm/m ² |
| Sensor | MEMS Accelerometer |
| Temperature Dependent Uncertainty | ±0.016 mm/m/°C (±0.001°/°C), for ±5° from vertical ±0.033 mm/m/°C (±0.002°/°C), for ±15° from vertical |
| Temperature Accuracy | ±0.5 °C (0 °C to 60 °C) ±1.0 °C (-40 °C to 60 °C) |
| Temperature Resolution | 0.06 °C |
| Operating Temperature | -40 to 60 °C (-40 to 140°F) |
| Dimensions | ø28.6mm x 211mm (ø1.125" x 8.31") |

1: 99% Confidence Interval
2: 68% Confidence Interval

ORDERING

| NON-BUSSED | PART # |
|---|-------------|
| MEMS Biaxial Tiltmeter-digital non-bussed-5m (bare leads) | IC8161-5m |
| MEMS Biaxial Tiltmeter-digital non-bussed-10m (bare leads) | IC8161-10m |
| MEMS Biaxial Tiltmeter-digital non-bussed-15m (bare leads) | IC8161-15m |
| MEMS Biaxial Tiltmeter-digital non-bussed-20m (bare leads) | IC8161-20m |
| MEMS Biaxial Tiltmeter-digital non-bussed-25m (bare leads) | IC8161-25m |
| MEMS Biaxial Tiltmeter-digital non-bussed-Xm (bare leads) Vertical surfaces only | IC8161-V-Xm |
| Custom cable lengths available on request | |

| BUSSED | PART # |
|---|-----------------------------------|
| MEMS Biaxial Tiltmeter-digital bussed-3m (connectors) | IC8160-V (vertical surfaces only) |

| MOUNTING | PART # |
|--|--------|
| Universal Bracket for MEMS Biaxial Tiltmeter | IC8180 |
| Protective Cover for MEMS Biaxial Tiltmeter | IC8185 |

| READOUTS & DATA LOGGERS | PART # |
|--|----------------|
| Rugged Handheld PC | IC32000-NAUTIZ |
| Digital Interface for Rugged Handheld PC with software | ELGL4010 |
| RSTAR DT2485 DT-BUS Data Logger | DT2485 |

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| FlexDAQ Dataloggers |
| RSTAR Affinity Wireless Data Logger System |

ACCESSORIES

| ITEM | DESCRIPTION |
|--------|--|
| IC8060 | End of Chain Dummy Plug |
| IC8085 | Extension Cable-5m Sensor to Sensor (Bussed) |
| IC8051 | Communication Cable to Logger-5m |
| IC8052 | Communication Cable to Logger-10m |
| IC8053 | Communication Cable to Logger-20m |
| IC8050 | Communication Cable to Logger-Custom length |