



In-place MEMS Tilt Meter shown with Vertical Mounting Bracket.



|  |                                     |
|--|-------------------------------------|
|  | <b>PRODUCT CATEGORY:</b>            |
|  | <b>INCLINOMETERS + TILT SENSORS</b> |



## In-Place Tilt Meter

RST's In-Place MEMS Tilt Meters measure tilt in either one or two axial planes perpendicular to the surface of the base plate. The unit is intended to be permanently installed to provide long term observation with maximum resolution and sensitivity, and is conveniently designed for manual monitoring or remote data acquisition.

The system consists of a tilt meter mounting plate, interconnecting cable, and data logger or readout instrument. The tilt meter may either be uniaxial or biaxial. The electronics are housed in a NEMA 4X (IP-65) enclosure for environmental protection, and is typically bolted or bonded to the structure. For maximum resistance against water ingress, the cable is typically hard wired to the enclosure. The interconnecting cable is suitable for direct burial.

A variety of signal outputs are available: digital bus (allowing several tiltmeters to be daisy-chained on a single cable) and analog (+/-5 V, loop-powered 4-20 mA).

### ORDERING

| UNIAXIAL   | PART #           |
|--|------------------|
| MEMS Uniaxial Tiltmeter - digital bus output                           | IC6556           |
| MEMS Uniaxial Tiltmeter - analog voltage                               | IC6550           |
| MEMS Uniaxial Tiltmeter - 4-20mA                                       | IC6552           |
| BIAXIAL  | PART #           |
| MEMS Biaxial Tiltmeter - digital bus output                            | IC6656           |
| MEMS Biaxial Tiltmeter - analog voltage                                | IC6650           |
| MEMS Biaxial Tiltmeter - 4-20mA  | IC6652           |
| MOUNTING   | PART #           |
| MEMS Tiltmeter Horizontal Mounting Plate                               | IC6700           |
| MEMS Tiltmeter Vertical Mounting Bracket                               | IC6705           |
| TEMPERATURE MEASUREMENT  |                  |
| Available for digital models only                                      |                  |
| READOUTS & DATA LOGGERS  | PART #           |
| Ultra Rugged Field PC <sup>2</sup> (digital bus systems)               | IC32000-AR2-RSTS |
| Digital Interface for Ultra Rugged Field PC <sup>2</sup> with software | ELGL4010         |
| DT2485 DT-BUS Data Logger  | DT2485           |
| flexDAQ Dataloggers (digital and analog systems)                       |                  |

### CABLE ORDERING

| ITEM     | DESCRIPTION  |
|----------|--|
| EL380004 | - Digital Bus (with or without temperature)<br>- 4-20 mA<br>- Analog |
| EL380006 | - Analog (biaxial)   |

### > APPLICATIONS

|   |   |
|---|---|
| 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 or 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. |

### > FEATURES

|   |  |
|---|--|
| Uniaxial or biaxial sensors available.        | High accuracy and repeatability.                 |
| Easy to install.                              | Cost effective.                                  |
| Data logger and/or manual readout compatible. | Digital bus output (analog and 4-20mA available) |
| NEMA 4X (IP-65) weather-proof enclosure.      |  |

### SPECIFICATIONS

| ITEM                    | DESCRIPTION  |
|-------------------------|--|
| Range                   | ±15°   |
| Resolution (digital)    | ±2 arc sec. (±0.0006°) (0.01 mm/m)   |
| Non-linearity (digital) | ±0.0125% F.S. (±0.002°) (0.03 mm/m)  |
| Repeatability (digital) | ±0.0125% F.S. (±0.002°) (0.03 mm/m)  |
| Resolution (analog)     | ±5 arc sec. (±0.025 mm/m) (10Hz BW)  |
| Non-linearity (analog)  | ±0.05% F.S. (±0.0075°) (0.13 mm/m)   |
| Repeatability (analog)  | ±0.025% F.S. (±0.004°) (0.06 mm/m)   |
| Sensor                  | MEMS (Micro-Electro-Mechanical Systems) Accelerometer, Uniaxial or Biaxial |
| Sensor Offset           | +/- 0.002 arc deg./deg. C  |
| Sensor Sensitivity      | +/- 0.013 % of reading/deg. C  |
| Excitation (analog)     | 8 - 15V DC   |
| Operating Temp.         | -40 to 85°C (-40 to 185°F)   |
| Dimensions              | 80 x 80 x 61mm (3.15 x 3.15 x 2.4 in.)                                     |