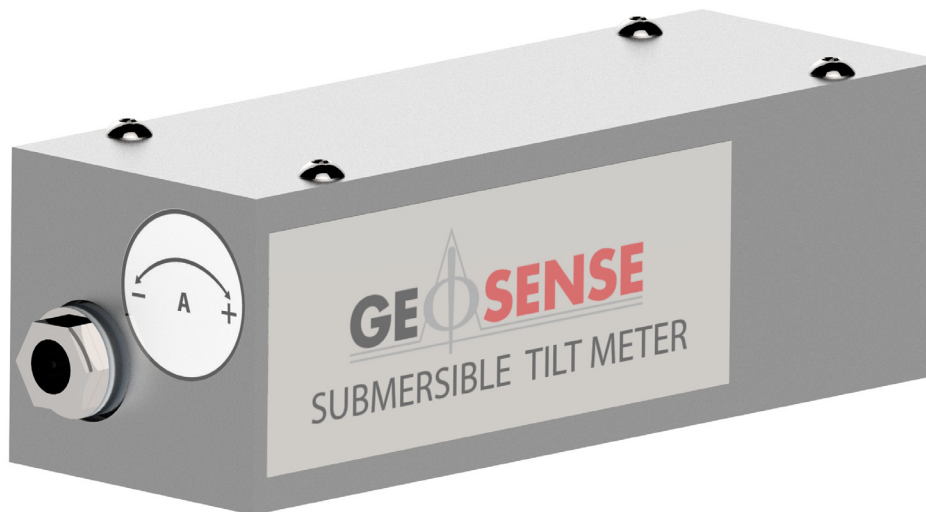


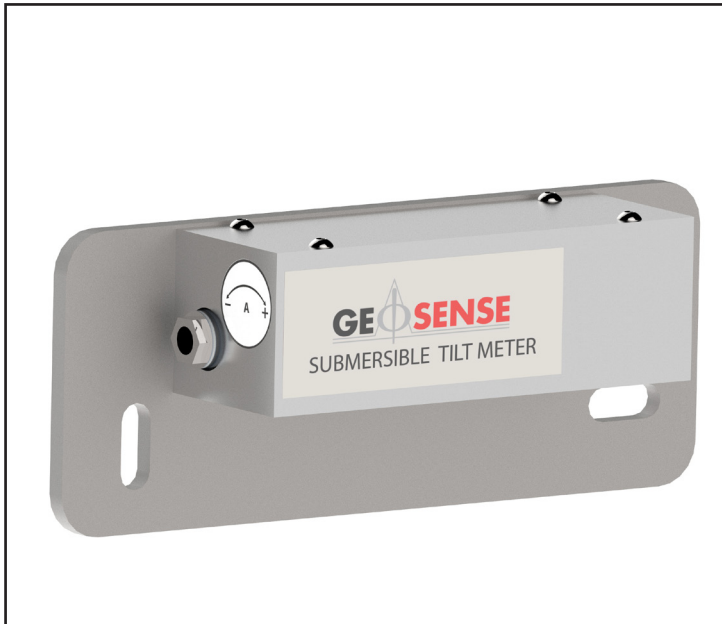
## MEMS Digital Submersible Tilt Meter

Designed to measure tilt on submerged structures either on a vertical, inclined or horizontal surface. Highly accurate MEMS sensors are mounted in robust watertight stainless steel housing which can be attached to the structure by bolting, bonding or welding



# MEMS Digital Submersible Tilt Meter

## Overview



Geosense® Submersible Tilt Meters are designed to measure tilt on submerged structures either on a vertical, inclined or horizontal surface.

They consist of highly accurate MEMS sensors mounted in robust watertight stainless steel housing which can be attached to the structure by bolting, bonding or welding.

Each unit is individually calibrated to provide the ultimate in system accuracy and repeatability and can be used in conjunction with a hand held readout, automatic data acquisition system and Wi-SOS to provide a wireless monitoring solution.

### APPLICATIONS

Monitoring of tilt in submerged structures:

Inclined concrete faced dams

Retaining walls

Bridge piers

Dock walls

Piles

Off-shore structures

Submerged pipelines

Bridge piers

### FEATURES

EMC compliant to EN61326-1:2013

Uniaxial and Biaxial options

Robust construction, suitable for long-term, high-pressure underwater situations

Can be mounted on inclined, vertical

Digital output

High accuracy and repeatability

IP68 (20 bar) enclosure

Full Stainless Steel construction

# MEMS Digital Submersible Tilt Meter

## Specifications

MODELS	SUTM-M 5-1-485	SUTM-M 5-2-485	SUTM-M 10-1-485	SUTM-M 10-2-485	SUTM-M 15-1-485	SUTM-M 15-2-485
Range	±5°	±5°	±10°	±10°	±15°	±15°
Axis	Uniaxial	Biaxial	Uniaxial	Biaxial	Uniaxial	Biaxial
PERFORMANCE						
Signal Output	RS-485/BUS	RS-485/BUS	RS-485/BUS	RS-485/BUS	RS-485/BUS	RS-485/BUS
Accuracy <sup>1</sup>	±0.0013° ±4.68 arc sec ±0.02 mm/m ±0.013% FS	±0.0013° ±4.68 arc sec ±0.02 mm/m ±0.013% FS	±0.002° ±7.2 arc sec ±0.035 mm/m ±0.01% FS	±0.002° ±7.2 arc sec ±0.07 mm/m ±0.01% FS	±0.004° ±13.5 arc sec ±0.07 mm/m ±0.0125% FS	±0.004° ±13.5 arc sec ±0.07mm/m ±0.0125% FS
Resolution	0.0005° 2 arc sec 0.01 mm/m 0.0015% FS	0.0005° 2 arc sec 0.01 mm/m 0.0015% FS	0.0005° 2 arc sec 0.01 mm/m 0.0015% FS	0.0005° 2 arc sec 0.01 mm/m 0.0015% FS	0.0005° 2 arc sec 0.01 mm/m 0.0015% FS	0.0005° 2 arc sec 0.01 mm/m 0.0015% FS
Repeatability	±0.002° ±7.2 arc sec ±0.03 mm/m ±0.02% FS	±0.002° ±7.2 arc sec ±0.03 mm/m ±0.02% FS	±0.002° ±7.2 arc sec ±0.03 mm/m ±0.01% FS	±0.002° ±7.2 arc sec ±0.03 mm/m ±0.01% FS	±0.002° ±7.2 arc sec ±0.03 mm/m ±0.007% FS	±0.002° ±7.2 arc sec ±0.03 mm/m ±0.007% FS
Operating Temperature	-40 to + 85°C	-40 to + 85°C	-40 to + 85°C	-40 to + 85°C	-40 to + 85°C	-40 to + 85°C
ELECTRICAL						
Sensor	MEMS					
Excitation	8-15VDC					
PHYSICAL						
Protection	IP68 (20 bar)					
Dimensions L x W x H	115 x 37.5 x 40mm					
Weight	950g					
MATERIALS						
Sensor enclosure	316 Stainless Steel					
EXTENSION CABLE (If required, to extend to data logger)						
Cable	Type 800 Multi-core with Braid					

<sup>1</sup> Using 3rd order polynomial

# MEMS Digital Submersible Tilt Meter

## Accessories & Ordering Information

### MOUNTING BRACKETS<sup>1</sup>

**Vertical surface mounting bracket** (Pic 1) (G40-047)

**Horizontal surface mounting bracket** (Pic 2) (G40-046)

### DATA ACQUISITION

**GeoLogger G8 Plus** – Specification will vary (G211-001)

**WI-SOS 480 Digital Node** - Wireless digital node that can be connected to a maximum of 30 IPI sensors (G216-046)

**RS-485 to RS-232 Interface** - Enables digital RS-485 sensors to be used with Campbell Scientific loggers (Q38-010)

**10" Windows Tablet** - Manual data display (G200-040)

### SOFTWARE

**GeoAxiom** – Software which provides data handling, storage, visualisation, alarms, reporting and web-based access. Specification will vary according to project requirement (T10-020)

**G-TILT** - Data display software for use with Windows Tablet

### ELECTRICAL

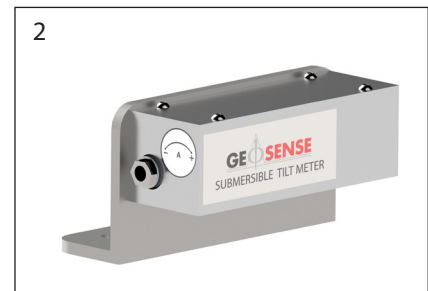
**Cable Type** - 800/TP/04/050/PUR/GY/8.0 (Q10-150)

**End of line resistor** /3.5m fly lead – Right hand (Q12-101)

**End of line resistor** /3.5m fly lead – Left hand (Q12-101A)

**EMC Splice Kit** (Q12-105)

<sup>1</sup> Magnetic options available on request



### ORDERING INFORMATION

Range

Axis

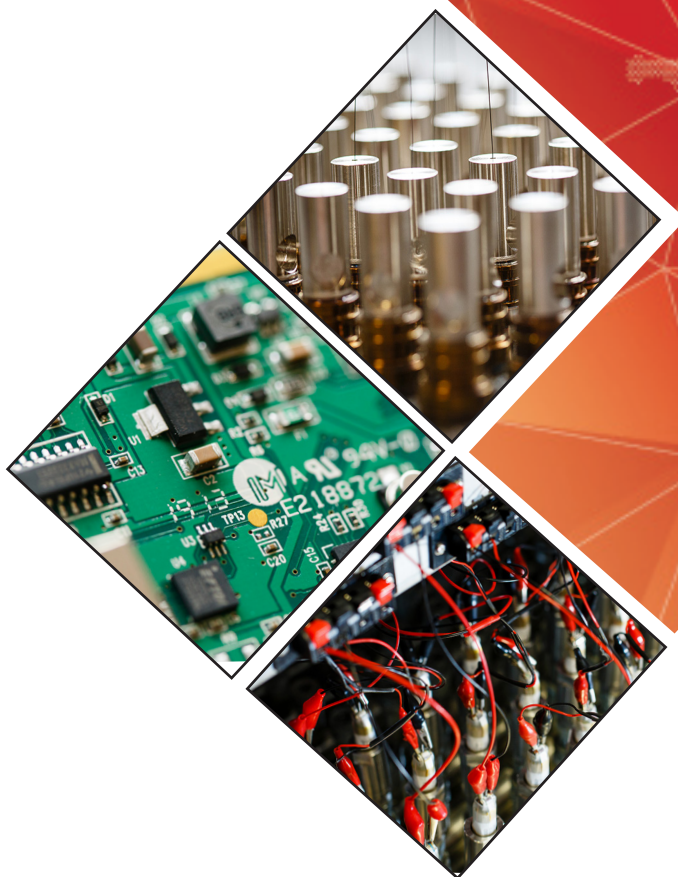
Orientation

Bracket type

Cable length

Version (Digital/Digital BUS)

Readout



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