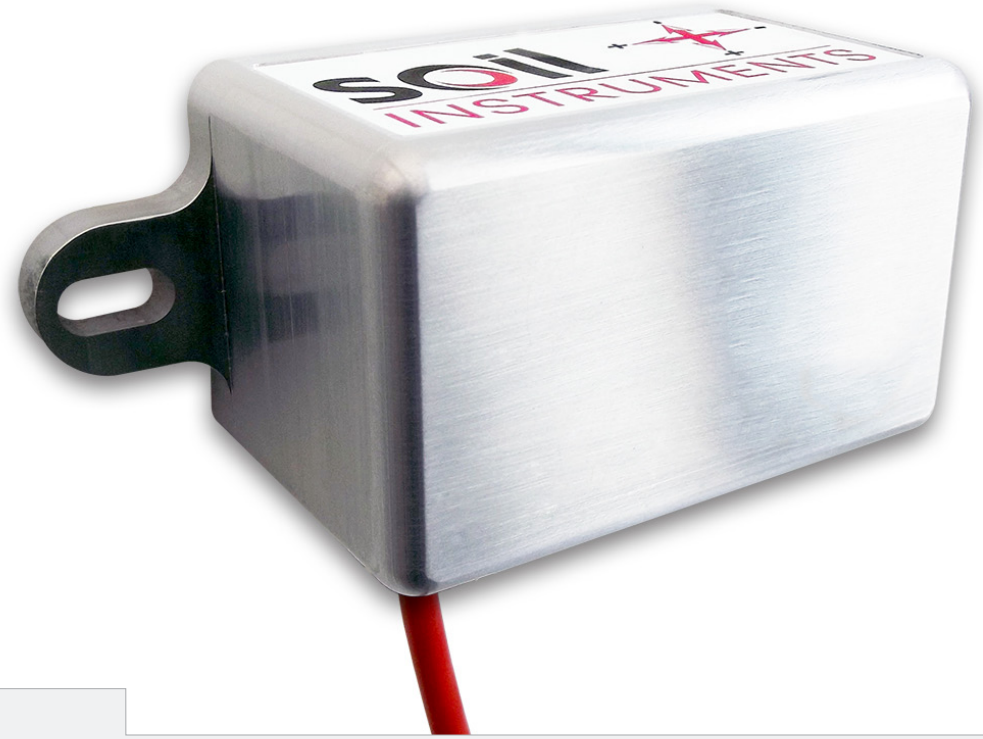
TLT6 MEMS TILTSENSOR

Datasheet TLT6



Description

The MEMS Tiltsensor is designed to monitor vertical rotations of structures.

Mounted within an Aluminium housing is a biaxial MEMS sensor that delivers a large measuring range with high sensitivity and relative immunity from the effects of long cable lengths.

Stainless steel submersible version available.

Each sensor incorporates an on-board microprocessor which performs an automatic temperature compensation of the tilt (g) data, delivering reliable, accurate and stable data.

The sensors are powered and the readings obtained by a Datalogger. The data can be directly imported into 'Argus' monitoring software, providing a near real time profile of displacement that is constantly updated and available to view from any PC or mobile device with an internet connection.

Features

- **Accurate and precise measurements using MEMS sensors**
- **Available in biaxial versions**
- **Inbuilt temperature compensation**
- **Stainless Steel submersible version, waterproof to 2000kPa**

Benefits

- **Easy to automate using data acquisition systems and 'Argus' software**
- **Removes the need for manual monitoring**
- **Suitable for safety critical applications**
- **Low power consumption**

Comprehensive information about this product and our full range is available at www.soilinstruments.com
If you would like to speak with someone directly please call +44 (0)1825 765044 or email sales@soilinstruments.com

PRECISELY MEASURED

instrumentation and monitoring

MICROELECTROMECHANICAL SYSTEMS (MEMS)

MEMS

Microelectromechanical Systems, or MEMS, is a technology that uses miniaturised mechanical and electromechanical elements that are made using the techniques of microfabrication. The physical dimensions of MEMS devices can vary from well below one micron all the way to several millimetres.

Our MEMS microsensor is a small discrete device that converts a measured mechanical signal, gravity (g) into a voltage signal.

Operation

The MEMS Tiltsensors are installed onto the desired structure of surface using appropriate fixings.

The MEMS Tiltsensor can be levelled using the Soil Instruments manual readout/leveling tool or a spirit level.

After levelling, each Tiltsensor is wired to a datalogger which powers the sensors, initiates readings and retrieves the data

The system can be fully automated using '**Argus**' monitoring software, providing a near real time profile of displacement.

Associated products

For details on:	Catalogue code:
Datalogger	D1

View our full product range on www.soilinstruments.com

Applications

The MEMS Tiltsensor monitors vertical rotations of structures.

Its most common use is to monitor settlement and heave of existing structures and tunnels caused by adjacent excavations or tunnelling works.

The sensor is especially useful where topographic measurements are precluded or where access is restricted.

Typical monitoring applications include:

- Brick and stone buildings
- Vertical rotation (heave and settlement) due to adjacent construction activities
- Bridges and dams
- Impounding and loading effects in short or long-term
- Differential levels
- Tunnels
- Monitoring vertical rotation and track formation

Standard Version - Biaxial

Submersible Version - Uniaxial & Biaxial

THE TECHNICAL RATING FOR THIS PRODUCT: ADVANCED

As the correct installation of any monitoring sensor or system is vital to maximise performance and accuracy, Soil Intruments makes the following recommendations, for the skill level of the installation contractor.

ADDITIONAL SUPPORT

We offer installation and monitoring services to support this system. For more information please email : **sales@soilinstruments.com** or call : **+44 (0) 1825 765044**

ADVANCED	The installer is trained and experienced in the installation of this type of instrument or systems, and is ideally a specialist Instrumentation and Monitoring contractor.
INTERMEDIATE	The installer already has previous experience and/or training in the installation of this instrument or system.
BASIC	As a minimum the installer has read and fully comprehends the manual, and if possible has observed these instruments or systems being installed by others.

Specifications

Sensors	Standard	Submersible
Calibrated Range	±3° | ±5° | ±10° | ±15°	
Resolution[1]	0.008% full scale	
Sensor accuracy	±0.05% full scale	
Operating temperature	-20 to +80°C	
Repeatability	±0.01% full scale	
Weight (without cable)	370g	540g
Dimensions	L 115mm x W 45mm x H 45mm	192mm x Ø32mm
Input voltage	10-16VDC	
Signal output at full range	±2.5VDC differential	
Current consumption	17mA (Biaxial)	17mA (Biaxial) / 9mA (Uniaxial)
Ingress protection	IP67	IP68 to 200mH_2O (2000kPa)
Housing material	Aluminium	Stainless Steel

[1]Dependent on readout equipment

Ordering Information

MEMS Tiltsensor - Standard Version

Includes mounting bracket

TLT6-BSM-3	Vertical biaxial ±52.3mm/metre (±3 arc degrees)
TLT6-BSM-5	Vertical biaxial ±87.2mm/metre (±5 arc degrees)
TLT6-BSM-10	Vertical biaxial ±173.6mm/metre (±10 arc degrees)
TLT6-BSM-15	Vertical biaxial ±258.8mm/metre (±15 arc degrees)
CA-3.1-6-IC	Instrument cable, 6 core, 7/0.20; screened, priced per metre, polyurethane jacket, for use with biaxial sensors

MEMS Tiltsensor - Submersible Version

Includes mounting bracket

TLT6-U-3	Vertical uniaxial ±52.3mm/metre (±3 arc degrees)
TLT6-U-5	Vertical uniaxial ±87.2mm/metre (±5 arc degrees)
TLT6-U-10	Vertical uniaxial ±173.6mm/metre (±10 arc degrees)
TLT6-U-15	Vertical uniaxial ±258.8mm/metre (±15 arc degrees)
CA-3.1-4-IC	Instrument cable, 4 core, 7/0.20; screened, priced per metre, polyurethane jacket, for use with uniaxial sensors
TLT6-B-3	Vertical biaxial ±52.3mm/metre (±3 arc degrees)
TLT6-B-5	Vertical biaxial ±87.2mm/metre (±5 arc degrees)
TLT6-B-10	Vertical biaxial ±173.6mm/metre (±10 arc degrees)
TLT6-B-15	Vertical biaxial ±258.8mm/metre (±15 arc degrees)
CA-3.1-6-IC	Instrument cable, 6 core, 7/0.20; screened, priced per metre, polyurethane jacket, for use with biaxial sensors

Installation Tools

C12-7.4	Manual IPI Readout

Manual

MAN-193	MEMS Tiltsensor

soil INSTRUMENTS

bsi. ISO 9001 Quality Management
FM 611948

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