

TLT7 TILT LOGGER

Datasheet TLT7



**Description**

The Tilt Logger is a standalone MEMS Tilt sensor with integrated datalogger and GSM/GPRS modem that measures the rotation of structures in the vertical plane.

Readings are stored on a local SD card and are transmitted to any FTP site via the on-board GSM/GPRS modem.

The Logger incorporates an intelligent 'passive' to 'active' alarm system with up to six user defined prioritisation thresholds, reducing battery consumption and an overload of needless data.

Logger settings are easily configured by the user, allowing full control of settings and alarms, making the device completely adaptable to site specific changes.

With continuous monitoring, automatic data transmission and active alarming, combined with the accuracy and reliability of a MEMS sensor, supplied in one compact and robust unit, the Tilt Logger is the perfect solution for your monitoring requirements.

**Features**

- Uniaxial MEMS sensor
- On-board GSM/GPRS modem
- Data delivered in engineering units
- Completely cable free; plug-and-play
- Intelligent alarming with 6 user defined thresholds and alarm notification via SMS and FTP
- Optional alarm suppression
- Low power; requires one D-Cell Lithium battery
- Micro SD card

**Benefits**

- MEMS sensor provides highly accurate and stable data
- Data delivered direct to 'ARGUS' Software via FTP
- No post-processing of data required
- Quick and easy to install
- Swift notification of changes in site conditions, alerting multiple users
- Reduces the likelihood of false alarms
- Operates for up to 2 years without battery change
- Internal logging of millions of data points



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

## Operation

The Tilt Logger is a comprehensive cable free monitoring unit; therefore it requires no cable or wiring of sensors and dataloggers. The only requirement is GSM/GPRS signal and an FTP site, however the unit can be configured and data retrieved manually via a Field PC and USB cable, if preferred.

The Tilt Logger is attached to the structure to be monitored using appropriate fixings such as expanding shells or groutable anchors.

The unit can either be programmed manually using a Field PC with a USB cable or remotely via the FTP server by changing the settings file.

The alarm system, SMS functions, reading intervals and schedules can be programmed or changed at any time quickly and efficiently via the FTP site. The data can then be viewed by anyone at any time; all that is required is an internet connection and the log on details for the FTP server.

The multi layered 'passive' to 'active' alarm system incorporates up to six user defined prioritisation thresholds. Once setup the Logger remains in 'passive' mode logging at user defined intervals, until any of the pre-set alarm levels are breached, at which point it will automatically switch to 'active' mode and initiate increased data transfer to the FTP site whilst simultaneously sending out multi-level SMS text alerts to multiple contacts.

## Applications

The Tilt Logger is used to monitor vertical rotations of structures; it is commonly used to monitor settlement and heave of existing structures caused by adjacent excavations or tunnelling works.

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

Typical 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
- Slope stability
- Land/mudslide prone areas
- Differential levels

## Associated products

For details on:

Catalogue code:

Rugged Field PC

C17-3

MEMS Tiltensor

TLT-6

View our full product range on [www.soilinstruments.com](http://www.soilinstruments.com)



### THE TECHNICAL RATING FOR THIS PRODUCT:

**INTERMEDIATE**



As the correct installation of any monitoring sensor or system is vital to maximise performance and accuracy, Soil Instruments 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](mailto: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

### Sensor

Type	MEMS uniaxial tilt sensor
Range	±15°
Accuracy	±0.2° full scale
Resolution	±0.005°
Repeatability	±0.01°
Operating temperature	-20 to +80° C
Housing material	Glass fibre, reinforced polyester, corrosion free
Ingress protection	IP66

### Power

Power supply	1 Lithium (e.g. LiSOCl <sub>2</sub> ) D-cell battery, 3.6V (not included)
Current consumption	< 4 µA on standby, 5mA while reading a sensor, typically 200mA during GSM transmission
Battery life	Over 2 years @ 15 minute intervals and daily data transmission

### GSM/GPRS

Frequency band	Quad band 850/900/1800/1900 MHz
Module	On-board GSM/GPRS modem
Antenna	Internal printed circuit board
SIM card	On-board, SIM lock free

### Datalogging

Logger resolution	12-bit A/D converter and over sampling
Logging frequency range	User defined, up to 1 reading per second
Sampling frequency	User defined, sampling typically every 1 second to every 10 seconds (to check against alarm levels)
Data transfer	Every 24 hours as standard and immediately when user-defined alarm is triggered

### Data Storage

Memory size	2GB micro SD, capable of storing millions of readings
Format of reading set	Time stamp, readings in raw or engineering units, information including battery voltage
Method of data transfer	Via GPRS/FTP and stored locally on the SD card

### Physical Properties

Size	L 162mm x W 82mm x H 60mm
Weight	1kg

## Ordering Information

Battery and Mounting Brackets to be Ordered Separately.

### Tilt Logger

TLT7-U-15 Uniaxial MEMS Tilt Logger;  $\pm 15^\circ$  range, GSM/GPRS modem

### Accessories

TLT7-Mount Wall Mounting Bracket Set.

Batt-3.6-19 3.6V Lithium battery; 1 required per logger.

### Manual

MAN-244 Tilt Logger



FM 611948

Bell Lane, Uckfield, East Sussex  
TN22 1QL United Kingdom

t: +44 (0) 1825 765044 e: [info@soilinstruments.com](mailto:info@soilinstruments.com) w: [www.soilinstruments.com](http://www.soilinstruments.com)

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