

TLT1 ELECTROLEVEL BEAM SENSOR

Datasheet TLT1



**Description**

The Electrolevel Beam Sensor measures rotation of structures in the vertical plane.

The sensor is based on the well established Fredericks 0711 series electrolevel sensor. The sensor mounting incorporates an adjustment for zeroing and protects the sensor against thermal gradients.

The sensor is attached to a rigid beam for installation and various beam lengths are available. Both ends of the beam are fixed using anchor bolts.

When multiple beams are placed end to end, a differential displacement profile of the structure from anchor point to anchor point can be derived.

**Features**

- Multiple beams in a chain give a complete displacement profile
- Simple, well proven device, ideal for measuring tilt in structures
- Accurate and precise
- Measures tilt along the whole length of a beam
- Measures vertical rotation

**Benefits**

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



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

PRECISELY MEASURED

instrumentation and monitoring

## Operation

The Electrolevel Beam Sensor consists of a precision glass electrolevel vial, mounted in an inert ceramic compound which is itself placed in an adjustable mount.

Both ends of the beam are attached to the structure using either expanding shells or groutable anchors. When multiple beams are placed end to end, a differential displacement profile of the structure from anchor point to anchor point can be derived.

Once installed, thumbwheels allow the sensor to be adjusted to the zero position using a handheld readout such as the HELM.

Electrolevel Beams are easily automated via a data acquisition system and 'Argus' monitoring software.

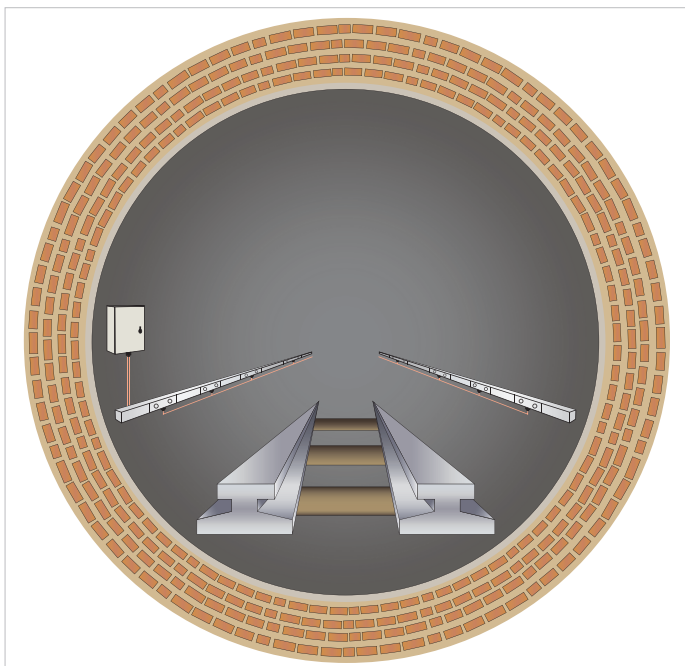
## Applications

The Electrolevel Beam sensor 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
- Heave and settlement due to adjacent construction activities
- Bridges and dams
- Impounding and loading effects in the short or long term
- Pipelines
- Differential levels
- Tunnels
- Vertical rotation and track deformation



## Associated products

For details on:	Catalogue code:
Datalogger	D1
HELM	TLT1-3
'Argus' Monitoring Software	D4

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### THE TECHNICAL RATING FOR THIS PRODUCT:

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

#### ADDITIONAL SUPPORT

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

#### ADVANCED



#### 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	Horizontal	Vertical
Range	±45 arc minutes (±13mm/m)	
Accuracy <sup>1</sup>	±0.1mm/m	
Resolution <sup>2</sup>	0.02% full scale	
Repeatability	±0.05% full scale	
Operating temperature	-20 to +50°C	
Current consumption	< 1 µA	
Output signal	Ratiometric AC	
Ingress protection	IP66	
Range	5°	±5° fine adjustment, ±25° Course
<b>Cable Fitment</b>	On site connection	
<b>Dimensions</b>	L 180mm x H 31mm x W 25mm	L 135mm x H 127mm x W 60mm
<b>Weight</b>	210g	890g

<sup>1</sup> Within precision range (± 14 arc minutes)

<sup>2</sup> Dependent on readout (CR1000)

## Ordering Information

### Electrolevel Beam Sensor

TLT1-1.1	Horizontal assembly
TLT1-1.2	Vertical assembly

### Electrolevel Beam - Horizontal

TLT1-H.1	1 metre length
TLT1-H.2	2 metre length
TLT1-H.3	3 metre length
TLT1-2.4	Fixing kit

### Electrolevel Beam - Vertical

TLT1-V.1	1 metre length
TLT1-V.2	2 metre length
TLT1-V.3	3 metre length
TLT1-2.4	Fixing kit
TLT1-2.6	Universal mounting plate

### Connecting Cable And Fittings

CA-3.1-4-IC	Instrument cable, 4 core, 7/0.20, screened
CA-3.2-4-FR	Low smoke cable, 4 core

### Handheld Electrolevel Levelling Tool - Helm

TLT1-3.1	Handheld electrolevel readout (HELM)
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### Manuals

MAN-173	Electrolevel Beam, Tilt and Hand Held Electrolevel Readout (HELM)
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