

## SOFO<sup>®</sup> Fibre Optic Inclinometer



- Two ranges
- High resolution
- Gravity as a vertical reference
  - Insensitive to temperature
- Immune to EM fields and corrosion
  - Waterproof
- Easy and fast installation

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## Description

The SOFO inclinometer is a measurement instrument designed for monitoring small vertical rotations. It consists of the measuring core and the connecting cable. The measuring core contains a flexible structure and an optical set-up (fibres, ferules, mirrors and coupler), all protected with an aluminum housing. A safety screw guarantees the protection to the core during transportation, handling and installation.

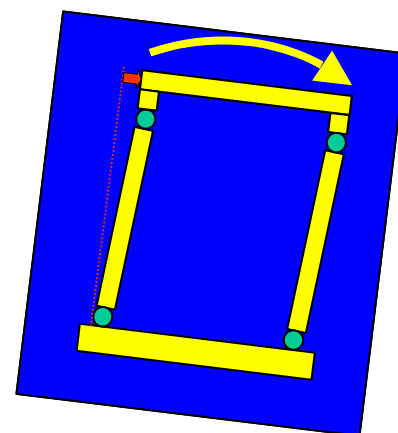
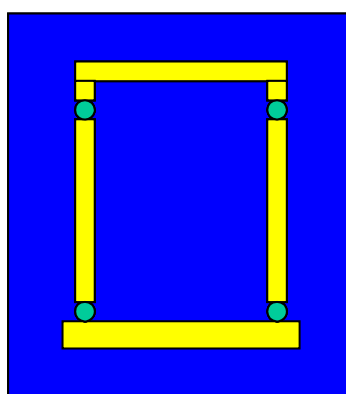
The flexible structure consists of a basis and a head connected with two parallel arms. The arm extremities are built in form of thin lamellas making the structure very sensitive to the gravity force. The rotation of the inclinometer will generate relative displacement between the head and basis. This displacement is measured by the SOFO system and automatically recalculated to a rotation. The SOFO inclinometer can be used in two configurations, head-up for small rotation ranges that require high resolution, and head-down for wider range that require less resolution. The vibrations of the head are quickly stabilized by magnet dampers.

The flexible structure of the inclinometer is fully symmetric. This makes the instrument particularly insensitive to temperature variations that will affect both arms equally, thus balancing themselves out at the central position. The other effect of temperature is linked to the temperature dependence of the Young's modulus of the lamellas. This remaining second-order effect can be neglected for practical applications or additionally compensated if necessary (automatic compensation is possible using thermocouples and the SOFO Pro software). The SOFO inclinometer is waterproof (IP66), insensitive to humidity and immune to EM fields and corrosion.

The SOFO inclinometer is used in a wide range of applications that require monitoring of rotations in limited number of points, such as buildings, bridges, pylons, dams, tunnels, just to name a few. Main advantages of this instrument are high resolution, full compatibility with the SOFO system, easy installation, long-term functioning, immunity to EM fields, insensitiveness to temperature, humidity and corrosion.



SOFO® Inclinometer and junction box



## Specifications

Dynamic range	5° (±2.5°) ~87 mrad (±43.5 mrad) full scale configuration head-up
	17° (±8.5°) ~297 mrad (±148.5 mrad) full scale configuration head-down
Resolution	6.2" (30 μrad), configuration head-up
	21" (100 μrad), configuration head-down
Precision / Repeatability	0.1 mrad, configuration head-up
	0.5 mrad, configuration head-down
Calibration	Performed during fabrication
Temperature sensitivity	<0.12%/°C

## Technical data

Dimensions	H=140 mm (170 mm with legs), W=132 mm (147 mm with legs), T=25 mm
Weight	~1.1 kg
Waterproofing	IP66
Connecting cable	Protected, L=0.45 m

All information contained herein is believed to be accurate and is subject to changes without notice.