

10.1050 SOFO CONCRETE SETTING SENSOR



PRELIMINARY

GENERAL DESCRIPTION

The SOFO deformation sensors are transducers that transform a distance variation into a change in the path unbalance between two optical fibers that can be measured with a Smartec's SOFO Reading Unit.

TECHNICAL DESCRIPTION

The sensor is composed of two main parts, an active and a passive one. The active part contains the reference and the measurement fibers and measures the deformations between its two ends.

The passive part is insensitive to deformations and is used to connect the sensor to the Reading Unit. The output is terminated with an E2000 0° connector with a built in protective cover.

The sensors can be quickly and easily surface mounted or directly embedded in concrete and mortars.

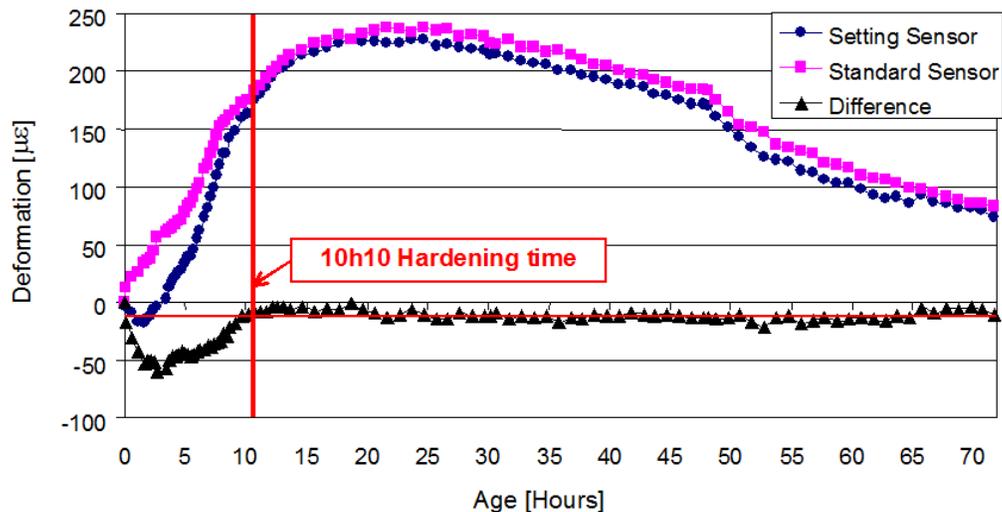
FEATURES

- Determination of concrete hardening time
- Easy to embed in fresh concrete
- Can be re-used for long term monitoring
- High resolution
- Temperature insensitive
- No calibration required
- Immune to electromagnetic fields

TECHNICAL DESCRIPTION

The Concrete Setting Sensor is designed to measure the hardening time of concrete. Its measurement principle is identical with the one of Standard SOFO Deformation Sensors. The only difference is that the axial stiffness of the protection tube of the Concrete Setting Sensor is several orders of magnitude larger, and its thermal expansion coefficient is different from that of non-hardened concrete. One Concrete Setting Sensor and one Standard Sensor are to be installed side by side and their measurements are to be compared.

In the initial phases after concrete pouring, when concrete has not hardened, the Standard Sensor accurately measures the very early age deformations of concrete, while the Concrete Setting Sensor deforms mainly due to temperature variations. Because of its high rigidity and different thermal expansion coefficient, it does not follow accurately the very early age deformations of concrete. Thus, before concrete hardening, the measurements realized by the Standard Sensor and the Concrete Setting Sensor are different.



TECHNICAL CHARACTERISTICS

Length of active zone (LA, measurement basis)	0.25m , 0.50m , 1.00 m
Length of passive zone (connecting cable)	1m to 100m Customized lengths up to 2000m upon request
Time resolution for concrete setting	1 h
Measurement resolution	2 µm RMS
External diameter	21 mm
Axial stiffness (EA)	35 MN
Mass	1.4 kg/m
Connecting cable (see specific datasheet for details)	Standard cable (recommended for normal conditions) Stainless steel protected cable (recommended in harsh conditions)

ORDERING INFORMATION

Specify Active Length, Optimization for SOFO Dynamic, Cable Type, Gland Nut



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