Fiber Optic Cable Deformation Survey Instrument

Overview

SOFO (a French acronym for Surveillance d'Ouvrages par Fibres Optiques) is a deformation measurement system based on low-coherence interferometry using an fiber optic sensor. The sensor consists of a pair of single-mode fibers installed in the structure to be monitored. Opsens Solutions' fiber optic strain and deformation sensor, probe and transducer. As such, temperature cables are usually deployed along with strain cables so that the readings measured from strain cables can be compensated and the actual mechanical strain can be obtained. By combining the advantages of fiber optic strain sensor and application engineering, Opsens is able to provide many adapted sensing solutions to meet the challenges of specific monitoring.

Article Content

Distributed Fiber Optic Monitoring of Ground Settlement

Brillouin-scattering based DFOS can produce a continuous strain profile within the soil, allowing for a continuous measurement of the deformations within the subsurface, which in turn can

Numerical investigation on interfacial behavior of soil-embedded fiber ...

Starting from the macroscopic perspective of the cable pullout force and displacement, the study focused on the stress-strain distribution at the cable-soil interface to comprehensively

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Opsens Solutions'' fiber optic strain and deformation sensor, probe and ...

Opsens Solutions optical strain sensor delivers reliable results in harsh environment. Opsens Solutions OSP-A fiber optic strain transducers are designed to provide accurate deformation measurement in

Fiber Optic Cables for Land Deformation Sensing Table 1. Three ...

To this aim, a couple of fiber optic strain cables have been developed (Sun et al. 2014). Table 1 lists three cables that were used in the two case studies described in this paper.

Vertically Distributed Sensing of Deformation Using Fiber Optic

We report the use of this technology for monitoring distributions of vertical deformation resulting from groundwater abstraction in Shengze, southern Yangtze Delta, China. An evaluation of

Deformation monitoring with fiber optic sensors (SOFO)

SOFO (a French acronym for Surveillance d''Ouvrages par Fibres Optiques) is a deformation measurement system based on low-coherence interferometry using an fiber optic sensor. The sensor

Hybrid Fiber Optic Cable for Strain Profiling and Crack Growth ...

This work presents a novel hybrid fiber optic cable with the ability to self-anchor to any brittle installation media without the need for manual installation along fixed interval points.

Fiber optic strain sensors and deformation gages

Impervious to radio-frequency interference, these fiber optic sensors are perfectly tailored to monitor strain and deformation with high precision in tough testing environments with extreme temperature,

Advances in fibre-optic-based slope reinforcement monitoring: A review

The deformation of rock/soil causes the deformation and fracture of reinforcement materials, which are subsequently transferred to the encapsulated fibre-optic (FO) sensors, providing

Distributed fiber optic sensors for tunnel monitoring: A state-of-the ...

Distributed fiber optic sensors (DFOSs) possess the capability to measure strain and temperature variations over long distances, demonstrating outstanding potential for monitoring

Toward Distributed Fiber-Optic Sensing of Subsurface Deformation: A ...

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Abstract and Figures Fiber-optic sensing is emerging as a superior means for distributed strain sensing of the subsurface. The ability of an embedded fiber-optic cable to capture accurate ...

Deformation measurement based on high resolution distributed optical ...

Recent researches focus on structural deformation measurement by using indirect strain distribution acquired by fiber optic sensors. Optical fiber based strain sensors are currently widely

Deformation monitoring

Deformation monitoring (also referred to as deformation survey) is the systematic measurement and tracking of the alteration in the shape or dimensions of an object as a result of stresses induced by

(PDF) Distributed fiber optic sensors for tunnel ...

Distributed fiber optic sensors (DFOSs) possess the capability to measure strain and temperature variations over long distances, demonstrating outstanding potential for monitoring

Hybrid Fiber Optic Cable for Strain Profiling and Crack

Laboratory scale testing demonstrates the ability of the hybrid fiber optic cable to measure strains across highly localized deformation zones in both

Application of fiber-optic curvature sensor in deformation

Fiber-optic interferometric sensors and curvature analysis using parallel topology of sensors are well explained in , , . The main advantage of interferometric fiber optic sensors is

Comparative Analysis of Deformation Determination by Applying Fiber ...

In the paper the description of an experiment for a comparative analysis of two different methods for deformation determination, geodetic and 2D deflection sensors based on fiber-optic

Laboratory Tests Using Distributed Fiber Optical

Using fiber optics as a tool for different kinds of geotechnical monitoring can be highly attractive and cost-effective when compared to

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