

Fiber Optic Cable Vibration Detection Patent



Overview

FiberSense, an Australia-headquartered company, has invented and patented an innovative sensor-based system over optical fibre cable infrastructure, called 'VIDAR' (vibration detection and ranging). The technology is an outcome of the synergy between Vodafone and FiberSense. A distributed optical fibre sensor is discussed which is arranged to detect acoustic vibration and at least a first of two or more other measurands, which could be for example two or more of changes in temperature, changes in static pressure, and changes in static strain. At least first and second. Our Optical Networking & Sensing department develops new optics and photonics patents spanning the Internet backbone to the home. Underground tunnels can be used to smuggle weapons, contraband, and people across borders unde-tected. Vodafone New Zealand. A fiber optic vibration sensor utilizes two single mode optical fibers supported by a housing with one optical fiber fixedly secured to the housing and providing a reference signal and the other optical fiber having a free span length subject to vibrational displacement thereof with respect to the.

Article Content

Vibration Detection Patents (Class 702/56)

Abstract: A distributed fiber optic sensing (DFOS) system and method employing a fiber optic sensor cable that autonomously collects DFOS data and employs artificial intelligence/machine

Vibration area localization and event recognition for ...

To solve the above problems, we propose a method for vibration area localization and event recognition of the underground power optical cable based on PGSD-YOLO and 1DCNN

Field Trials of Vibration Detection, Localization and Classification ...

We review sensing fusion results of integrating fiber sensing with video for machine-learning-based localization and classification of impulsive acoustic event detection. Classification accuracy >97%

Research on Optical Fiber Vibration Identification Technology Based

This paper aims to develop an optical fiber vibration identification system based on big data analysis to realize the real-time monitoring and data analysis of the running state of optical

Vibration Detection Patents (Class 702/56)

Abstract: This application describes a fibre optic cable structure which is advantageous for distributed fibre optic sensing, for example distributed acoustic sensing (DAS).

Distributed Fiber-Optic Sensors for Vibration Detection

Distributed fiber-optic vibration sensing technology is able to provide fully distributed vibration information along the entire fiber link, and thus external vibration

FiberSense Brings their Patented VIDAR Technology

FiberSense, an Australia-headquartered company, has invented and patented an innovative sensor-based system over optical fibre cable

FiberSense Brings their Patented VIDAR Technology

FiberSense has invented and patented an innovative sensor-based system over optical fibre cable infrastructure, called "VIDAR" (vibration detection

Distributed Optical Fibre Vibration Sensor

A distributed optical fibre sensor is discussed which is arranged to detect acoustic vibration and at least a first of two or more other measurands, which could be for example two or more...

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US5063781A

3) Detection of the amplitude and frequency of the vibrations even at a great distance from the sensor, obtainable in particular owing to the low attenuations of the optical fibers.

Fiber optic cables used as vibration sensors challenge IoT

The company can therefore detect things like passing traffic with sufficient accuracy to determine the difference between a truck and a cyclist,

US5381492A

The present invention relates generally to a sensor for detecting vibrational disturbances, and more particularly to a fiber optic, three-dimensional, sensor capable of detecting and measuring

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(PDF) Vibration Detection Using Optical Fiber Sensors

In this paper, the most frequently used vibration optical fiber sensors will be reviewed, classifying them by the sensing techniques and measurement

Vibration analysis for predictive maintenance of optical fiber cable ...

To this end, the effectiveness of vibration analysis for fault detection in a half-submerged module on fiber optic cable manufacturing was studied through theoretical methods, measurement techniques,

VIBRATION DETECTION WITH OPTICAL FIBERS

The vibration detector 500 modifies an optical signal via a first fiber such as the optical fiber 502, and sends a modified optical signal via a second fiber, such as the optical fiber 514 wherein the optical

Fibre-optic gyroscope

Fibre-optic gyroscope The interference on a Sagnac interferometer is proportional to the enclosed area. A looped fibre-optic coil multiplies the effective area by the

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VIBRATION DETECTION WITH OPTICAL FIBERS - European

The vibration detector 500 modifies an optical signal via a first fiber such as the optical fiber 502, and sends a modified optical signal via a second fiber, such as the optical fiber 514 wherein the optical

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Advances in distributed fiber optic vibration/acoustic sensing technology

Distributed fiber optic vibration/acoustic sensing technology utilizes the Rayleigh back-scattered light generated by periodically injecting laser pulses into fiber under test (FUT) to achieve ...

Characterization of sensitivity of optical fiber cables to acoustic ...

This paper focuses on a reference measurement and analysis of optical fiber cables sensitivity to acoustic waves.

U.S. Patent for Fiber optic vibration detection Patent (Patent ...

The optical receiver configured to receive the optical signal from the vibration sensor, the optical signal comprising fluctuations responsive to vibration of the vibration sensor. The optical signal includes a

Vibration Detection Using Optical Fiber Sensors

In addition, optical fiber sensors can offer noncontact, perturbation-free means of monitoring as they provide a new approach to vibration

DE102010019813A1

There is provided a fiber optic vibration sensor for generators in power plants with an optical fiber having a freestanding end, wherein the freestanding end is vibrated under the influence of vibrations, and

Fiber Optic Based Distributed Mechanical Vibration Sensing

The distributed long-range sensing system, using the standard telecommunication single-mode optical fiber for the distributed sensing of mechanical vibrations, is described. Various events

Optical Fiber Vibration Signal Recognition Based on the Fusion of

Because of the problem of low recognition accuracy in the recognition of intrusion vibration events by the distributed Sagnac type optical fiber sensing system, this paper combines the

Smart optical cable positioning/location using optical fiber sensing

The method uses a movable mechanical vibration source to stimulate tiny vibration of fiber in deployed cable along a cable route and a fiber sensing system at a central office to...

Distributed Fiber-Optic Sensors for Vibration Detection

Distributed fiber-optic vibration sensors receive extensive investigation and play a significant role in the sensor panorama. Optical parameters such as light intensity, phase, polarization state, or light

Optic Cable Tracking and Positioning Method Based on Distributed ...

It is exerted to the sensing optical fiber and can accurately determine the position of the sensing optical fiber on the vibration signal; it can also be used in the monitoring of long-distance communication

Parameter Identification Method for Interferometric Vibration Detection ...

This paper focuses on the problems of cable external damage and proposes a parameter identification method for vibration detection in cable trench, based on the principle of Mach-Zehnder fiber

SING FIBER OPTIC ACCELEROMETERS

Many applications benefit from the addition of accelerometers and vibration measurements to capture dynamic phenomena. Two key application areas where measuring vibration or acoustic signals over

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Abstract: This application describes a fibre optic cable structure which is advantageous for distributed fibre optic sensing, for example distributed acoustic sensing (DAS).

Fiber optic vibration sensor (Patent) | OSTI.GOV

Fiber optic vibration sensor (U.S. Patent No. Dooley, J B, Muhs, J D, and Tobin, K W, "Fiber optic vibration sensor," US A, issued January 10, 1995.

Power Cable Vibration Detection and Signal Feature Parameter

Power cables are widely used in power systems. In order to detect vibration signals of power cables, this paper studies a fiber optic vibration sensing system based on Mach-Zehnder interference (MZI). A

(PDF) Research on Automatic Cable Monitoring System Based on Vibration ...

High-voltage power cable temperature monitoring system Schematic diagram of submarine cable vibration monitoring system Temperature measurement curve of distributed optical fibre sensor

Development of fiber optic broadband vibration-detection system

In other words, there is no electric sensor capable of detecting vibration in a wide frequency range from mechanical vibration to ultrasound. Therefore, the development of a broadband sensor and its

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