

Methods for measuring displacement using fiber optic gratings



Overview

Specifically, the latest FBG-based displacement technologies are examined from three principles of detection, i., wavelength, intensity and phase signal demodulation. With the development of fiber optical technologies, fiber Bragg grating (FBG) sensors are frequently utilized in structural health monitoring due to their considerable advantages, including fast response, electrical passivity, corrosion resistance, multi-point sensing capability and low-cost. With the development of fiber optical technologies, fiber Bragg grating (FBG) sensors are frequently utilized in structural health monitoring due to their considerable advantages, including fast response, electrical passivity, corrosion resistance, multi-point sensing capability and low-cost. Abstract: With the development of fiber optical technologies, fiber Bragg grating (FBG) sensors are frequently utilized in structural health monitoring due to their considerable advantages, including fast response, electrical passivity, corrosion resistance, multi-point sensing capability and. Fiber Bragg grating has embraced the area of fiber optics since the early days of its discovery, and most fiber optic sensor systems today make use of fiber Bragg grating technology. Researchers have gained enormous attention in the field of fiber

Bragg grating (FBG)-based sensing due to its. Displacement measurement is of great significance to monitor the crack variation and ensure the health of building structures.

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The urban pavement monitor is always an important measure for preventing pavement collapse and ensuring people safety. A fiber Bragg grating (FBG)-strain tube by polydimethylsiloxane ...



Basic fundamentals of FBG and recent progress of fiber Bragg grating-based sensors used in various applications for temperature, pressure, liquid level, strain, and refractive index sensing have been ...



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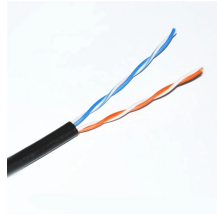
Aiming at the problems of low sensitivity and high temperature error of fiber Bragg grating (FBG) displacement sensors in displacement monitoring, this paper presents an adjustable cantilever ...



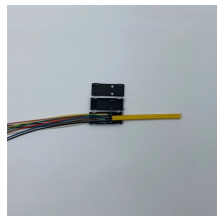
Specifically, the latest FBG-based displacement technologies are examined from three principles of detection, i.e., wavelength, intensity and phase signal demodulation.



This review paper aims to give a general understanding of the basic principles of FBG sensors, advances in sensing and data processing techniques, developments of novel optical fiber sensors, ...



In this article, the recent sensing advances and principles of detection of FBG-based displacement sensors are illustrated. Specifically, the latest FBG-based displacement technologies ...



An experimental study was conducted to verify the feasibility of the designed fibre optic displacement strain gauge for simultaneous measurement of the displacement and strain, as shown ...



We developed and characterized a temperature-independent fiber Bragg grating (FBG)-based random-displacement sensor that adopts a magnetic scale as a novel transferring ...



In this article, the recent sensing advances and principles of detection of FBG-based displacement sensors are illustrated. Specifically, the latest FBG-based displacement technologies ...



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