Dual-core fiber Bragg grating sensing technology

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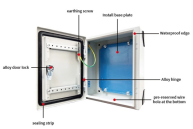
A sensor for dual-parameter sensing of strain and temperature by dual fiber Bragg gratings (FBGs) structure was proposed and demonstrated. The structure with a traditional FBG ...

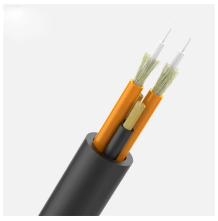
In this work, we propose a novel, computationally efficient method for determining the 3D tip position of a bent multi-core FBG-based optical fiber using a second-order polynomial...

These studies provided innovative solutions for embedding FBG sensors in composite materials or encasing them in protective coatings that minimize degradation due to environmental exposure. A ...

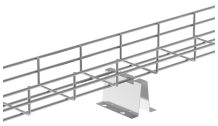
Addressing this gap, this article designs a machine learning based fiber Bragg grating dual parameter flexible sensing system. Specifically, two FBGs with non-overlapping reflection spectra are ...



To enable simultaneous miniature dual-parameter sensing of twist and temperature at the same position, we propose and demonstrate an in-fiber parallel cladding and core fiber Bragg grating ...

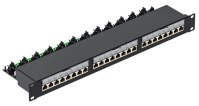


This study presents an automated paradigm for assembling high-density fiber Bragg sensor arrays on complex surfaces. The framework ensures signal fidelity and structural integrity, enabling ...



Here, we propose a high-temperature two-parameter fiber Bragg grating (FBG) sensor for monitoring temperature and vibration signals simultaneously. Two sets of cascaded gratings are written onto a ...

Fiber Bragg grating (FBG) sensors have emerged as advanced tools for monitoring a wide range of physical parameters in various fields, including structural health, aerospace, biochemical, ...



This review highlights significant advancements in Fiber Bragg Grating (FBG) sensors, detailing their operational principles, recent technological developments, and diverse applications in SHM, thereby ...

In this work, we investigate the sensing performance of Fiber Bragg Gratings (FBGs) engineered to operate near EPs through precise structural tuning. By aligning the reflection spectrum edges with ...

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