Structure of Fiber Bragg Grating Demodulator

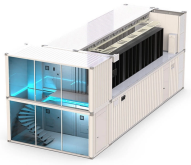
Overview

The FDL is composed of a fiber-ring cavity, by which the delay time is matched with the interval length of the adjacent WFBGs. Fibre Bragg grating (FBG) sensors are used to measure various quantities such as temperature, stress, vibrations, pressure, or refractive index. The characteristic feature of these sensors is that the position of the spectrum changes due to the action of a particular physical quantity. Based on the influence of hysteresis and creep of piezoelectric ceramics, a tunable F-P. A demodulation algorithm is vital for a fiber Bragg grating (FBG) sensing system. In this paper, a novel demodulation algorithm based on the variable-step-size method and cross-correlation algorithm is proposed to demodulate the wavelength of an FBG.

Structure of Fiber Bragg Grating Demodulator

To address this issue, a demodulation system utilizing MEMS mirrors is proposed, involving constructing a demodulation system based on MEMS mirrors.

We demonstrate the use of a fiber delay line (FDL) to demodulate a weak fiber Bragg grating (WFBG) array. The FDL is composed of a fiber-ring cavity, by which the delay time is matched with the ...



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Based on the influence of hysteresis and creep of piezoelectric ceramics, a tunable F-P filter is calibrated with a standard to locate the central wavelength reflected by fiber Bragg grating. In ...

In this study, we proposed a silicon-on-insulator (SOI) chip to demodulate FBGs based on random speckles. A 20-mm-long coiled multimode silicon waveguide was designed to generate ...

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A novel approach to fibre Bragg grating spectra processing is proposed. The method is based on the use of nonlinear filtration and raising the spectrum value to the second power.

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Overall, despite a lot of past effort, there is still a need for a simple and robust FM/PM demodulation scheme that can achieve linear, wideband, and background-free operation. Here, we present a novel ...

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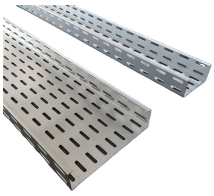

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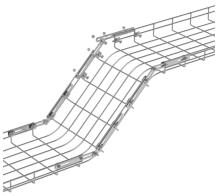
This article introduces a novel fiber grating displacement sensing demodulation system by applying dual grating structure, with high-resolution, demodulation fast, simple structure and so on.

The low-frequency vibration signal with high signal-to-noise ratio (SNR) is difficult to be obtained in the conventional methods owing to the influence of temperature and background noise in ...



A demodulation algorithm is vital for a fiber Bragg grating (FBG) sensing system. In this paper, a novel demodulation algorithm based on the variable-step-size method and cross-correlation algorithm is ...

Principle, structure design, and experimental setup of a fiber Bragg grating (FBG) sensor with a simple signal detection method for demodulation of resonance wa

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