

Demodulation of Fiber Optic Sensor Array



Overview

This paper presents a method that integrates neural networks with arrayed waveguide gratings (AWGs) for the demodulation of fiber-optic sensors based on the Vernier effect and a novel, to our knowledge, Fabry-Pérot (FP) strain sensor structure. For backscattering-based systems—encompassing Raman, Brillouin, and. Distributed fiber optic sensing (DFOS) has emerged as a critical technology for structural health monitoring of large-scale infrastructure, offering unique advantages in terms of coverage and environmental adaptability. This review presents a comprehensive analysis of the two dominant technical. The Sagnac interferometer-based fiber-optic hydrophone (S-FOH) exhibits a frequency-dependent response, causing the output signal to deviate from the original acoustic signal, with severe cases leading to signal distortion. A high-power amplified spontaneous emission (ASE) source served as the broadband detection light. The spectrum generated by the dispersion of.



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Demodulation algorithm for optical fiber fabry-perot interference sensor

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By synthesizing recent advances in modulation schemes, detection hardware, and algorithmic processing, this paper outlines the

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