

Frequency Response of Displacement Fiber Optic Sensor



Overview

A fiber-optic sensor is presented that is capable of measuring the particle displacement in high-intensity focused ultrasound (HIFU) fields. For this probe, a secondary calibration was performed, and the resulting complex frequency response is discussed. We propose a novel non-contact optical fiber displacement sensor. It uses a radio frequency (RF) interrogation technique which is based on bidirectional modulation of a Mach-Zehnder electro-optical modulator (MZ-EOM).

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This equation shows that the liquid refractive index response of sensor is a function of displacement x and refractive index of inclination angles of θ_1 and θ_2 .



In an extrinsic fiber-optic sensor, the optical fiber is not directly affected by the parameter, while in an intrinsic fiber-optic sensor, the optical fiber experiences it directly.



This article reviews specifically the advanced fiber optic displacement sensing techniques that have been developed in the past two decades.



In this chapter, fiber-optic displacement sensors (FODS) are demonstrated using an intensity modulation technique.



Here, we present a comprehensive analytical model for multi-axis tilt sensing based on intensity-modulated optical fiber sensors (OFDSs).



Abstract: We propose a novel non-contact optical fiber displacement sensor. It uses a radio frequency (RF) interrogation technique which is based on bidirectional modulation of a Mach-Zehnder electro ...



This paper introduces a novel design methodology for optical fiber bundles in OFDSs, simplifying the design process while customizing it to meet the unique demands of varied ...



A fiber cavity ring-down (FCRD) displacement sensor with picometer resolution using frequency-shifted interferometry (FSI) was developed.

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