Optics & Photonics

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How to calculate the accuracy of fiber optic sensors

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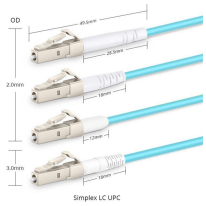

In this paper, accuracy calibration experiments and the related analyses of two fiber-optic sensing technologies, the fiber-optic grating (FBG) and ...

When an optical fiber is embedded within a specimen using capillaries, both the fiber positions and orientations may vary along the fiber. An analytical model was established to ...

This chapter focuses on the possibility of merging the ML methods with fiber optic sensing systems, and the potential real-time analysis architectures applied to structural health monitoring, ...

Additional optical fibers have been produced, including plastic optical fibers, glass optical fibers with plastic claddings, photonic crystal (holey) optical fibers, doped active optical fibers, and others.

In this article, you will learn how to calibrate fiber optic sensors for strain measurement using different methods and tools.

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This paper reviews the fiber optic sensors that have been developed and applied to measure cable forces, including fiber Bragg grating, interferometer, and fully distributed sensors.

The performance of fiber optic sensors can be evaluated based on several key factors including sensitivity, accuracy, resolution, linearity, hysteresis, repeatability, and stability.

In this paper, accuracy calibration experiments and the related analyses of two fiber-optic sensing technologies, the fiber-optic grating (FBG) and optical frequency domain reflectometry ...

Distributed fiber optic sensors (DFOSs) have been effectively used for pavement health monitoring. However, the inhomogeneity of the asphalt mixture and the characteristics of the sensor ...

An accuracy evaluation method for optical fiber shape sensing is proposed, which allows us to compare the performance of sensors with different specifications.

To provide an answer, we need to explain to the questioner what a “measurement” is and then what accuracy is. That is the first subject of this technical paper.

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