



Automated characterization of a bifurcated optical fiber bundle displacement sensor taking into account reflector tilting perturbation effects

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Abstract

An optical displacement sensor using bifurcated fiber bundle technology is investigated here. An automated PC-based measurement system specially developed for the characterization of the optical displacement sensor is described. Experimental results are presented, showing how the transfer function of the sensor is affected by occasional tilting of the surface being monitored. A theoretical analysis based on a Gaussian beam approximation is also developed for the purpose of interpreting the reported experimental results. © 2000 John Wiley & Sons, Inc. *Microwave Opt Technol Lett* 26: 242–247, 2000.

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