

Review of high sensitivity fibre-optic pressure sensors for low pressure sensing

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ABSTRACT

Fibre Bragg grating (FBG) pressure sensors show a great potential in replacing conventional electrical pressure sensors due to their numerous advantages. However, increasing their pressure sensitivity performance for low hydrostatic pressure measurement is still a challenge. This paper reviewed recent pressure sensitivity enhancement methods that could be divided into two groups, namely intrinsic and extrinsic. For the intrinsic enhancement method, this paper reviewed polymer FBGs, special fibre sensors, interferometric sensors, and special grating sensors. For the extrinsic enhancement method, polymer-based pressure transducers, diaphragm-based pressure transducers, and other structure-based pressure transducers were reviewed in detail.

KEYWORDS

Fibre Bragg grating (FBG); Optical fibre sensors; Pressure sensors; Liquid-level sensors

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