

High sensitivity fiber Bragg grating pressure sensor using thin metal diaphragm

A high sensitivity pressure sensor design without a polymer transducer is demonstrated in this paper. The sensor uses a thin metal diaphragm as a pressure transducer instead of a polymer. The sensor is tested to a maximum pressure of 100 psi and has a sensitivity of 0.0115 nm/psi, which matches the calculated sensitivity of 0.0127 nm/psi. The sensor provides accurate measurement of the pressure and shows good repeatability in its readings. The sensor is also tested at the flow loop of the University of Tulsa, and shows a good match with the pressure readings of the flow loop..