

# Design Optimization of Strain Gauge Pressure Transducer

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## ABSTRACT

In this work, the strain-gauged pressure transducers will be studied in detail. According to various pressure ranges, sensing elements are designed in their appropriate types and sides. Relevant dimensions are parameterized. Based on optimization process, the most suitable values of these parameters are determined. In practice, the finite element technique is used in the analysis of stress and strain. Under certain prescribed constraints, the objective function, which is taken as a strain function, is maximized in order to obtain maximum measuring sensitivity. The voltage outputs of the bridge circuit composed of bonded gauges are calculated.

Keywords : 壓力感測器 ; 橋式電路 ; 有限元素法 ; 最佳化 ; 感測彈性體 ; 應變計

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