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双丝差动型磁致伸缩位移传感器结构设计

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摘　要：

为了降低现有磁致伸缩位移传感器信号的各种噪声干扰，有效的提高测量精度，减小误差，提出了一种新型的双丝差动结构设计方案；分析了传统单线圈磁致伸缩位移传感抗干扰能力和精度的不足，并通过电路信号测试对比、传感器精度实验、稳定性实验对比论证了本方案在提高传感器精度和抗干扰能力方面的优势，为产品化的磁致伸缩传感器结构设计提供了一种全新的思路。

关键词：位移传感器 磁致伸缩 双丝差动 感应信号 信噪比 温度补偿

Designment of bi-waveguide differential magnetostrictive displacement sensor

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Abstract:

With the purpose of declining the interference of all kinds of noises, and improving the measuring precision efficiently, a new differential model with two waveguides and two coils for the sensor was proposed. This paper analyzed the deficiency of traditional single-coil displacement sensor’s anti-interference ability and precision, with testing the electrocircuit output signals and the precision and the stability, the new designment testified to its superiority in improving precision and anti-interference ability, comparing the traditional single coil structure. It provides a new idea for the manufacture of magnetostrictive displacement sensor.

Keywords: displacement sensor, magnetostrictive, bi-waveguide differential, responding signal, SNR, temperature compensation

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