传感技术学报
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一种可用于风速测量的CMOS光点位置检测传感器的设计

作　者：孙萍, 秦明

单　位：江苏信息职业技术学院

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摘　要：

摘 要： 介绍了一种可用于风速风向测量的光点位置检测传感器的结构、特点、工作原理，给出了传感器的理论模型，分析了传感器测量分辨率和灵敏度。该传感器在用于大风速测量有较高的测试灵敏度。在0-20m/s测试量程内，在10V测量电压下，10m/s时风向的灵敏度为7mV/度，风速的灵敏度为2.5mv/μm。该传感器结构简单，工艺制作方便，能与CMOS工艺兼容，无温度漂移。

关键词：关键词： 光斑位置检测；CMOS；光电导效应；螺旋结构

Design of a CMOS Light Spot Position Detection Sensor Applied for Wind Measurement

Author's Name:

Institution:

Abstract:

Abstract:Abstract: In this paper, a CMOS light spot position detection sensor applied for wind measurement is introduced. The structure, features and working principle of the sensor are discussed. Based on circuit theory, the analytic model of the sensor is given and the resolution and sensitivity are also analyzed. The results show that the sensor has larger sensitivity and resolution in large wind measurement application compare to the small wind measurement application. At the measuring wind speed is 10m/s in the range span of 0-20m/s, if the applied voltage is 10V and sensitivities of the wind direction and wind speed measurement are 7mV/degree and 2.5mV/μm. Respectively, the sensor we discussed here has the many advantages such as simple structure, easy fabrication, CMOS compatible and without temperature drift.

Keywords: key words: Light Spot Position Detection; CMOS; Photo Conductive Effect; Spiral Structure

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