

一种基于单片机的湿度传感器校准实验平台设计与实现

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摘要：

本文设计了一种湿度传感器校准实验平台。该平台以STC89C52单片机为核心控制器，通过PTC（正温度系数）陶瓷加热器和半导体制冷器将密闭试验箱环境温度控制在25℃，利用饱和盐溶液构建标准湿度环境，以18B20温度传感器制作出的数字干湿球温度计对环境湿度进行辅助校准。最终研制出具有硬件电路、软件驱动代码和输入输出控制系统的湿度传感器校准平台。该平台作为湿度传感器校准仪器具有准确度高，成本低和便于携带等优点。

关键词：湿度传感器；校准实验平台；饱和盐溶液；单片机

Design and Implementation of Humidity Sensors Calibration Experiment Platform Based on MCU

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Abstract:

In this paper, a novel calibration experiment platform of humidity sensor has been designed and implemented. STC89C52 microprocessor is chosen as the master control chip in the system, the PTC (positive temperature coefficient ceramics) and semiconductor refrigerator is respectively employed to heat up or cool down, the environment temperature in platform is controlled at 25℃. And then, the standard humidity environment levels are produced by seven saturated salt solutions. The digital psychrometer constructed by a pair of 18B20 temperature sensors is employed to detect auxiliary the humidity of environment. Finally, a calibration experiment platform prototype of humidity sensor has been fabricated, which consist of hardware circuits, software driver codes, input/output control system and etc. This scheme with properties of high-accuracy, low-cost, and easy-portable, will be a useful instrument for calibrating humidity sensors.

Keywords: Humidity sensor, calibration experiment platform, saturated salt solutions, microprocessor

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