

Study of Metrological Characteristics of Low-Cost Digital Temperature Sensors for Greenhouse Conditions

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The article focuses on the relevant scientific and applied problem of assessing and analyzing the metrological characteristics of available digital temperature sensors for greenhouse conditions. The hardware and software implementation of the microprocessor system for obtaining calibration characteristics and evaluating the accuracy and performance of temperature sensors for the physical media under greenhouse conditions is studied. A particular type of linear calibration equation for the temperature sensors under study is established. The values of systematic absolute measurement deviations of temperature sensors DS18B20, SHT11, SHT21, BMP180, BME280 and DHT22 are experimentally obtained. Recommendations on improving the accuracy of temperature information and temperature measuring systems under greenhouse conditions are given. The perspective areas of the research on metrological provision of modern means of automatic monitoring and temperature control in industrial greenhouses are substantiated.

Keywords: *Sensor, Deviation, Temperature, Greenhouse.*