

Automatic detection computer-based (ADCob) system for temperature measurement calibration of RTD

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ABSTRACT:

The accuracy of the temperature measurement calibration in industry which consume a long process creates a chance that errors in the measurement influence the decision. The need of uncertainty analysis via virtual instrument is to provide a better measurement of that influence and likelihood of presented a wrong decision. Using the temperature calibration instrument, the purpose of this paper is to design the automatic detection of temperature calibration for uncertainty calculation and confidence limits determination system. The test was conducted using Resistance Temperature Detector (RTD) sensor and repeated for three times. The data acquisition (DAQ) card is used to interface the temperature instrument and the computer. In order to determine the uncertainty and confidence limits of the temperature measurement, graphical user interface (GUI) system has been developed in Visual Basic(VB) programming language. The developed measurement system shows that the uncertainty of RTD can be calculated by interfacing the instrument to the computer through DAQ card. The study focuses on automatic detection of the temperature measurement and concentrates only on RTD sensor. The results provide the confidence limits of five-point calibration that could improve the manual computer-based system by using automatic computer-based system of the temperature measurement.

KEYWORDS:

Calibration; Uncertainty; Confidence Limits; Temperature Sensor

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