Journal of Medical Engineering & Technology, Volume 23, Number 6, 1 December 1999 , pp. 240-245(6)

A computer-based system for identification of the static characteristics of medical sensors

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Abstract

This paper presents the design and implementation of a computer-based system for identification of the static characteristics of medical sensors. The static characteristic obtained is then used to correct the input-output non-idealities caused by nonlinearity effects, gain error, hysteresis and environmental effects. The knowledge of this characteristic enables digital signal processing of the sensor response, facilitates correction of input-output non-idealities and forms a compensation formula which is required for the optimal design of the experiment for medical sensor calibration. The identification system consists of a personal computer and a microcontroller based electronic system. In consideration of practical situations special emphasis is oriented toward its user friendliness and future extendability.