

ABSTRACT

Uneven distribution of temperature in the chamber Water Bath can cause the temperature conditions in the chamber are not the same. Temperature, humidity, atmospheric pressure, and dust particles are the main factors which adversely affect the accuracy of water bath's temperature. Therefore, water bath needs calibration prior to use. Based on reality, the calibration of the Water Bath is done by using 1 Thermometer which is placed at several points in turn so that the results of the measurement of 9 points cannot be known in real time[1], then a calibration tool for Water Bath with storage (6 Channel) was made. In this study the system can detect temperatures at each chamber point. The K-type Thermocouple sensor is used to detect the temperature at each chamber point with the help of the MAX6675 module as a PSA. The sensor readings will be displayed on a Personal Computer using a USB cable, the sensor readings can be stored on a Personal Computer in the form of a TXT so that data can be reprocessed using Microsoft Excell for further calibration purposes. This study aims to facilitate the calibration process and the processing of calibration data. The results of digital measurements obtained a temperature error value of 40 ° C channel 1 1,4 %, channel 2 1.8%, channel 3 0.4%, channel 4 0.2%, channel 5 0.2% and channel 6 0.2%. Temperature 50 ° C channel 1 2.25%, channel 2 2.26%, channel 3 2.00%, channel 4 2.44%, channel 5 2% and channel 6 1.6%. Suhu 60 ° C channel 1 0.3%, channel 2 20.6%, channel 3 0.5%, channel 4 1.5%, channel 5 2% and channel 6 1.8%. Based on the test results, this module has the lowest error of 0.2% and the highest error of 2.44%. The results of this research can be implemented as a Water Bath calibration tool to maintain the temperature stability of the instrument.

Key Word : Calibration, Chamber Temperature, K-Type Thermocouple