

## Development of Temperature Equipment base on Pt100 Sensor for Gauge Block Calibration Process

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We developed the temperature measurement for use in the process of calibrate gauge block. The measurement equipment sense the temperature by four Pt100 temperature sensor. This sensors are very small in size and can contact with not affect the gauge block temperature. The small size sensors ability to measure the temperature of tiny piece or a big size gauge block. This temperature equipment organize by Arduino microcontroller board with high resolution MCP 3424 analog to digital convertor 18 bit. The Arduino calculated the voltage converted from MCP3424 to temperature by the Ohm law. Four Pt100 got the current about 1 mA to generate the voltage across. With this develop measurement, we have the temperature equipment that can measure temperature with resolution 0.04 °C and test this equipment at ice point. We got the average temperature along 83 minutes of four Pt100 equal 0.14 °C, 0.14 °C, 0.16 °C and 0.13 °C. The all standard deviations of measurement temperature are in the range of calculated uncertainties.

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