DESIGN AND CONSTRUCTION PROTOTYPE OF PRESSURE MEASUREMENT SYSTEM BASED MICROCONTROLLER ATMega8535

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Abstract

Have designed prototypes based pressure gauges mikrokontrolet ATMEL-ATMega8535 with the measurement range between 0 to 14 Psi that can be used as a media academic learning in the understanding of pressure measurement and calibration system. The components used in the design of the system is the power supply circuit, microcontroller, sensors MPX5100GP, pressure gauge, compressor and as the LCD display. The working principle is to change the input pressure of the compressor (0 to 14Psi) or voltage signal into analog, then converted into a digital signal and displayed to the LCD screen. The tool is then calibrated using a pressure gauge. Uncertainty of the values obtained type A and type B of the measurement results, uncertainties type A, $U_{A1}$: 0.0306Psi; $U_{A2}$: 0.01891Psi, and Type B uncertainties, $U_{B1}$: 0.00289Psi; $U_{B2}$: 0.14Psi; $U_C$: 0.14458Psi; $V_{eff}$: 78; $k$: 1.995 dan $U_{exp}$: 0.2885Psi.

Keywords: pressure, uncertainty, calibration