ABSTRACT

This portable liquid density measuring instrument uses the principles of Pascal law as the workings of this measuring instrument, where Pascal's law works on the U pipe in which there is liquid and the sistem is closed, besides this measuring instrument also uses load cell and ultrasonik as a measure of the mass and height of water contained in the density meter. Where for ultrasonik sensors has a measurement range of 3 cm to 400 cm while the load cell used can measure loads up to 2 kg. Data processing sistem from the sensor uses the Atmega 328 microcontroller with the Arduino uno driver and the measurement data is displayed by a 16x2 display. To calibrate the ultrasonik sensor a ruler is placed on the wall of the measuring device so that the increase in water can be seen through the ruler that has been placed, while the mass of the liquid has been measured before entering the measuring instrument as a calibration of the load cell. The samples measured were cooking oil, oil, water, and glycerin. This measuring instrument has an accuracy of around 80 to 98%, has a precision of about 0.031 to 0.14, and has an error of 0.025 or 2.84%

Keywords: Pascal law, density, ultrasonik, load cell, pipe U