

ABSTRACT

Desalination of sea water is one of solutions to solve clean water crisis in Indonesia. However, Indonesia still rely on instruments from other countries, that make the cost of desalination is still expensive. Indonesia should be able to create their own instrument if they want to create an affordable desalination. One of instrument which needed to build is a low cost TDS meter.

TDS meter is a device used to determine conductivity and the amount of dissolve substance in the water. TDS meter design using conductivity sensor which made by silver as electrode material. ATmega32 microcontroller is used to process the result of measurement. Designing and testing components of the TDS meter includes power supply, multivibrator, current driver, amplifier circuit, conductivity sensor, minimum system for microcontroller, and LCD.

Designed TDS meter capable for measuring conductivity and TDS on fresh water, slightly saline, and moderately saline. Designed TDS meter has two measurement ranges, first range and second range. First range has conductivity reading from 0 to 16.4 mS/cm and 0 to 8.15 grams/liter for TDS reading, while second range has conductivity reading from 5.6 to 26.3 mS/cm and TDS reading from 2.89 to 13.18 grams/liter. TDS values is obtained by converting conductivity value with conversion factor of 0.49692.

Keyword : conductivity, TDS, microcontroller, ATmega32, sensor