

Sarika Agarwal, Microcontroller based impedance related measurements, M. Tech. Thesis, Department of Electrical Engineering, Indian Institute of Technology Bombay, 2000.

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Abstract - The impedance measurement is required in various applications of electrical and electronic circuits. There are many methods available for the purpose. In this project a simple circuit for the measurement of impedance in polar as well as rectangular form has been implemented. With the use of microcontroller result is digitally displayed. An accuracy of $\pm 4.03\%$ has been obtained over the frequency range of 500-5KHz for the impedances in the range 10-10 K Ω . A simple circuit for the measurement of Quality and Dissipation factors based on *ac* bridges is also discussed. The method unlike conventional *ac* bridges needs no calibrated decade boxes and requires only phase balance condition to be satisfied for the measurement. A microcontroller based LCR bridge is analysed and certain modifications that can be made in the circuit have been suggested.