

ABSTRACT

This thesis deals with the design and development of an inductance conductimeter intended to be used primarily for making impedance measurements on blood and other body fluids, under strict conditions of temperature control.

Thus, the appropriate basic electromagnetic theory is briefly described, the physical principles relevant to its operation are discussed and the functional electrical relationship described. Considerations on mechanical design and construction are discussed and the essential features of the construction described, as are also the testing and calibration of the instrument.

The conductimeter is easily capable of extension in its application, and the possibilities in this respect are discussed and the appropriate modifications in construction and the requirements for the additional replaceable components are described.

Finally, the possible refinements towards the optimization of the instrument in every functional respect are discussed.