1. Record Nr. UNINA9910337632403321

Autore	Al-Ali Abdulwadood A
Titolo	Design and Implementation of Portable Impedance Analyzers / / by Abdulwadood A. Al-Ali, Brent J. Maundy, Ahmed S. Elwakil
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2019
ISBN	3-030-11784-7
Edizione	[1st ed. 2019.]
Descrizione fisica	1 online resource (103 pages)
Disciplina	543.6 543.4
Soggetti	Electronic circuits Signal processing Image processing Speech processing systems Biomedical engineering Circuits and Systems Signal, Image and Speech Processing Biomedical Engineering and Bioengineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Chapter 1. Bio-impedance measurement and applications -- Chapter 2. Direct impedance measurement design techniques -- Chapter 3. In-direct impedance measurement design techniques -- Chapter 4. Implementation examples -- Chapter 5. Conclusion.
Sommario/riassunto	The increasing interest in the bio-impedance analysis in various fields has increased the demand for portable and low-cost impedance analyzers that can be used in the field. Simplifying the hardware is crucial to maintaining low-cost and portability, but this is not an easy task due to the need for accurate phase and magnitude measurements. This book discusses different portable impedance analyzers design techniques. Additionally, complete designs using two different approaches are reported. The first approach utilizes a commercially available single chip solution while the second one is based on a new measurement technique that eliminates the need to measure the phase

by using a software algorithm to extract it from the magnitude information. Applications to the measurement of fruit bio-impedance are emphasized and compared with measurements from professional stand-alone impedance analyzers. Offers a review of the most common portable bio-impedance analyzer designs Provides a detailed implementation and design procedure for two different portable bio-impedance analyzers Describes some interesting bio-impedance applications in agriculture and food quality monitoring along with experimental results obtained using the proposed designs.