

1. Record Nr.	UNINA9910254595103321
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Titolo	Amperometric and Impedance Monitoring Systems for Biomedical Applications // by Jaime Punter-Villagrasa, Jordi Colomer-Farrarons, Francisco J. del Campo, Pere Miribel
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2017
ISBN	3-319-64801-2
Edizione	[1st ed. 2017.]
Descrizione fisica	1 online resource (VIII, 241 p. 145 illus., 75 illus. in color.)
Collana	Bioanalysis, Advanced Materials, Methods, and Devices, , 2364-1118 ; ; 4
Disciplina	306.461097309045
Soggetti	Medical physics Radiation Electronic circuits Physical measurements Measurement Biomedical engineering Electrochemistry Medical and Radiation Physics Circuits and Systems Measurement Science and Instrumentation Biomedical Engineering/Biotechnology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Acknowledgements -- Abstract -- Abbreviations -- Contents -- List Of Figures -- 1 Introduction -- 2 Electronics architectures Box -- 3 Design, Test and Validation of the proposed Architecture -- 4 Validation of the Pervasive Architecture with different applications -- 5 New Generation of POC Device: AN Hematocrit (HCT) Detection Case -- 6 Conclusions -- Appendix A: Schematics, Design and Validation of Different Potentiostat Topologies -- Appendix B: Schematics, Design and Validation of an Electronic Device for EIS Applications -- Appendix C: Schematics, Design and Validation of the HCT POC Device.

The book presents the conception and realization of a pervasive electronic architecture for electrochemical applications, focusing on electronic instrumentation design and device development, particularly in electrochemical Point-of-Care and Lab-on-a-Chip devices, covering examples based on amperometric (DC) and impedance detection (AC) techniques. The presented electronics combine tailored front-end instrumentation and back-end data post-processing, enabling applications in different areas, and across a variety of techniques, analytes, transducers and environments. It addresses how the electronics are designed and implemented with special interest in the flow process: starting from electronic circuits and electrochemical biosensor design to a final validation and implementation for specific applications. Similarly, other important aspects are discussed throughout the book, such as electrochemical techniques, different analytes, targets, electronics reliability and robustness. The book also describes the use of the presented electronics in different electrochemical applications through some examples: instantaneous and non-destructive cellular monitoring and portable glucose monitoring device. Moreover, the book aims to introduce a comprehensive approach to electronic circuits, techniques and electrochemical sensors in POC devices to a general audience of students in biomedical and electronics engineering, scientists, and engineers.
