1. Record Nr. UNINA9910451006503321

Titolo	Sensor technology handbook [[electronic resource] /] / editor-in-chief, Jon S. Wilson
Pubbl/distr/stampa	Amsterdam ; ; Boston, : Elsevier, c2005
ISBN	978-0-0805-8084-8 1-281-00971-7 978141755276X 9786611009717 0-08-048084-5 9780080580848 0-08-058084-X
Descrizione fisica	1 online resource (705 p.)
Altri autori (Persone)	WilsonJon S
Disciplina	681.2 681/.2
Soggetti	Detectors - Design and construction Engineering instruments - Design and construction Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Cover; Table of contents; Preface; 1 Sensor Fundamentals; 1.1 Basic Sensor Technology; 1.2 Sensor Systems; 2 Application Considerations; 2.1 Sensor Characteristics; 2.2 System Characteristics; 2.3 Instrument Selection; 2.4 Data Acquisition and Readout; 2.5 Installation; 3 Measurement Issues and Criteria; 4 Sensor Signal Conditioning; 4.1 Conditioning Bridge Circuits; 4.2 Amplifiers for Signal Conditioning; 4.3 Analog to Digital Converters for Signal Conditioning; 4.4 Signal Conditioning High Impedance Sensors; 5 Acceleration, Shock and Vibration Sensors; 5.1 Introduction 5.2 Technology Fundamentals5.3 Selecting and Specifying Accelerometers; 5.4 Applicable Standards; 5.5 Interfacing and Designs; 6 Biosensors; 6.1 Overview: What Is a Biosensor?; 6.2 Applications of Biosensors; 6.3 Origin of Biosensors; 6.4 Bioreceptor Molecules; 6.5 Transduction Mechanisms in Biosensors; 6.6 Application Range of

Biosensors; 6.7 Future Prospects; 7 Chemical Sensors; 7.1 Technology Fundamentals; 7.2 Applications; 8 Capacitive and Inductive Displacement Sensors; 8.1 Introduction; 8.2 Capacitive Sensors; 8.3 Inductive Sensors; 8.4 Capacitive and Inductive Sensor Types
8.5 Selecting and Specifying Capacitive and Inductive Sensors8.6 Comparing Capacitive and Inductive Sensors; 8.7 Applications; 8.8 Latest Developments; 8.9 Conclusion; 9 Electromagnetism in Sensing; 9.1 Introduction; 9.2 Electromagnetism and Inductance; 9.3 Sensor Applications; 9.4 Magnetic Field Sensors; 9.5 Summary; 10 Flow and Level Sensors; 10.1 Methods for Measuring Flow; 10.2 Selecting Flow Sensors; 10.3 Installation and Maintenance; 10.4 Recent Advances in Flow Sensors; 10.5 Level Sensors; 10.6 Applicable Standards; 11 Force, Load and Weight Sensors; 11.1 Introduction
11.2 Quartz Sensors11.3 Strain Gage Sensors; 12 Humidity Sensors; 12.1 Humidity; 12.2 Sensor Types and Technologies; 12.3 Selecting and Specifying Humidity Sensors; 12.4 Applicable Standards; 12.5 Interfacing and Design Information; 13 Machinery Vibration Monitoring Sensors; 13.1 Introduction; 13.2 Technology Fundamentals; 13.3 Accelerometer Types; 13.4 Selecting Industrial Accelerometers; 13.5 Applicable Standards; 13.6 Latest and Future Developments; 13.7 Sensor Manufacturers; 13.8 References and Resources; 14 Optical and Radiation Sensors; 14.1 Photosensors; 14.2 Thermal Infrared Detectors
15 Position and Motion Sensors15.1 Contact and Non-contact Position Sensors; 15.2 String Potentiometer and String Encoder Engineering Guide; 15.3 Linear and Rotary Position and Motion Sensors; 15.4 Selecting Position and Displacement Transducers; 16 Pressure Sensors; 16.1 Piezoresistive Pressure Sensing; 16.2 Piezoelectric Pressure Sensors; 17 Sensors for Mechanical Shock; 17.1 Technology Fundamentals; 17.2 Sensor Types, Advantages and Disadvantages; 17.3 Selecting and Specifying; 17.4 Applicable Standards; 17.5 Interfacing Information; 17.6 Design Techniques and Tips, with Examples
17.7 Latest and Future Developments

Sommario/riassunto

Without sensors most electronic applications would not exist-they perform a vital function, namely providing an interface to the real world. The importance of sensors, however, contrasts with the limited information available on them. Today's smart sensors, wireless sensors, and microtechnologies are revolutionizing sensor design and applications. This volume is an up-to-date and comprehensive sensor reference guide to be used by engineers and scientists in industry, research, and academia to help with their sensor selection and system design. It is filled with hard-to-find information, contri