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## **Sensor Technologies for Civil Infrastructures**

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A complete, contemporary reference for structural and electronic engineers, covering a vast range of sensor technology for damage detection, maintenance, and more

A Volume in the Woodhead Publishing Series in Electronic and Optical Materials.

## **KEY FEATURES**

- Volume 1 describes sensing hardware and data collection and covers a variety of sensors, including fiber optic systems, piezoelectric sensors, strain gauges, MEMS (micro-electromechanical systems), and lasers
- Volume 2 examines sensor data analysis and case studies, assessing structures such as bridges, buildings, dams, tunnels, and pipelines

## DESCRIPTION

Sensors are used for civil infrastructure performance assessment and health monitoring, and have evolved significantly through developments in materials and methodologies. *Sensor Technologies for Civil Infrastructure* is a two-volume set that provides an overview of sensor hardware and its use in data collection, analysis, and case studies in assessing and monitoring civil infrastructures.

Volume I focuses on sensing hardware and data collection, covering a variety of sensors. The book examines fiber optic systems, acoustic emission, piezoelectric sensors, electromagnetic sensors, ultrasonic methods, and radar and millimeter wave technology. Its chapters cover strain gauges, micro-electro-mechanical systems (MEMS), multifunctional materials and nanotechnology for sensing, and vision-based sensing and lasers.

Volume II concentrates on data analysis, with an in-depth examination of sensor data management and analytical techniques for fault detection and localization, looking at prognosis and life-cycle assessment. This volume features case studies in assessing structures such as bridges, buildings, super-tall towers, dams, tunnels, wind turbines, railroad tracks, nuclear power plants, offshore structures, levees, and pipelines.

Sensor Technologies for Civil Infrastructure: Volumes I and II provide a standard reference for structural and civil engineers, electronics engineers and academics with an interest in the field.

## **AUDIENCE**

Sensor technologies for civil infrastructure Volumes 1 and 2 provide a standard reference for structural and civil engineers, electronics engineers and academics with an interest in the field.

