

Understanding Automotive Electronics

S i x t h E d i t i o n

William B. Ribbens

In today's cars, the electronic systems are more complex than simple electrical wiring. They now affect almost every operating aspect of the automobile. This sixth edition of *Understanding Automotive Electronics* covers the most recent technological advances in operation and troubleshooting of electronic systems and components, including low-emission standards, on-board diagnostics and communications, digital instrumentation, and digital engine control. This is a practical text, suitable for the automotive technician, student, enthusiast, or professional who wants to upgrade his or her background in electronic systems found in the automobile.

The basis for understanding the functions of automotive electronics systems and subsystems is a good grasp of mechanical auto operation. Chapter 1 covers the basic structures and systems of late-1990's autos. Chapters 2, 3, and 4 provide a foundation in electronic components, subsystems, and systems with emphasis on digital devices including microprocessors and microcontrollers. All major concepts are illustrated with specific exemplary automotive applications.

Chapters 5 through 10 cover specific automotive systems and subsystems including powertrain, suspension, braking, steering, and various aspects of vehicle motion control as well as instrumentation, navigation, telematics, occupant safety, and diagnosis. Recent developments in hybrid vehicles, dual voltage electrical buses, and advanced cruise control are also covered.

Chapter 11 discusses possible future trends in automotive electronic technology including variable valve timing, stability augmentation, and advanced telematics technology and application.

- Extensive revision of the popular fifth edition
- Overviews of basic automotive and electronic systems
- Electronic system, subsystem, and component operation, analysis, and problem diagnosis
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William B. Ribbens is Professor of Electrical Engineering and Computer Science and former Director of the Vehicular Electronics Laboratory at the University of Michigan in Ann Arbor.

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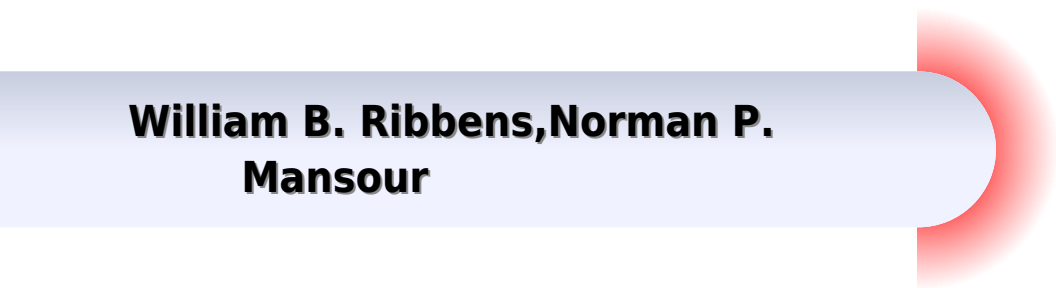
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higher education where students need to gain an understanding of current technology It is also an ideal resource for anyone seeking to update their own knowledge in this fast moving field Although they may do very different jobs all sophisticated automobile electronic control systems work in fundamentally the same way and comprise a microcomputer system that communicates with the outside world via various sensors and actuators The emphasis is very much on the building up a good knowledge base in electrical and electronic principles and guiding the reader through the fundamentals of microprocessor systems and their control strategies Vehicle specific applications will then be illustrated through case studies drawn from a wide variety of different manufacturer s products Simple analogies to the everyday world are presented wherever possible and jargon is avoided With a good grounding in microprocessor systems and exposure to a broad range of example applications the reader should be able to understand the functioning of new and different automotive electronic systems as they appear on the market Eric Chowanietz is a Senior Lecturer in the dept of Electrical and Electronics Engineering at De Montfort University He has industrial links with Rover Philips Electronics the Transport Road Research Lab General Motors ATP Electronics and Delco Electronics amongst others

Understanding Artificial Intelligence Henry C. Mishkoff, Dan Shafer, 1988

Automotive Engineering ,1992

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Automotive Electronics Handbook Ronald K. Jurgen, 1999 This second edition of the widely sold title contains new and updated chapters on areas such as safety features It also includes new sections on adding electronic intelligence to automotive features

Motor Industry Magazine ,2007-02

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Radio-electronics ,1985

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