

- Preface p. xi
- Chapter 1 The Principles of Electronics Reviewed p. 1
- Introduction p. 1
- Magnetic Effects p. 1
- Conductors and Insulators p. 2
- Direct Current (dc) p. 3
- Alternating Current (ac) p. 3
- Electronic Circuits p. 3
- Circuit Analysis p. 5
- Static Electricity p. 6
- Magnetism p. 7
- Electromagnetism p. 7
- Magnetic Shielding p. 7
- Electromagnetic-Radiation Spectrum p. 8
- Low-End Spectrum Frequencies (1 to 1000 Hz) p. 9
- Low-End Radio Frequencies (1000 to 100 kHz) p. 9
- Medium-Frequency Radio (20 kHz to 2 MHz) p. 9
- High-Frequency Radio (2 to 30 MHz) p. 9
- Very High and Ultrahigh Frequencies (30 MHz to 3 GHz) p. 10
- Microwaves (3 to 300 GHz) p. 10
- Infrared, Visible, and Ultraviolet Light p. 10
- X-Rays p. 10
- Passive Circuit Components p. 10
- Resistors p. 11
- Wire-Wound Resistor p. 11
- Metal Film Resistor p. 11
- Carbon Film Resistor p. 11
- Carbon Composition Resistor p. 11
- Control and Limiting Resistors p. 12
- Resistor Networks p. 12
- Adjustable Resistors p. 12
- Attenuators p. 12
- Capacitors p. 13
- Polarized Capacitors p. 13
- Nonpolarized Capacitors p. 14
- Film Capacitors p. 14
- Foil Capacitors p. 15
- Electrolytic Capacitors p. 15
- Ceramic Capacitors p. 15
- Polarized-Capacitor Construction p. 15
- Aluminum Electrolytic Capacitors p. 16
- Tantalum Electrolytic Capacitors p. 16
- Inductors and Transformers p. 16
- Losses in Inductors and Transformers p. 17
- Air-Core Inductors p. 18
- Ferromagnetic Cores p. 18

- Shielding p. 18
- Diodes and Rectifiers p. 18
- The pn Junction p. 19
- Zener Diodes and Reverse Breakdown p. 20
- Current Regulators p. 21
- Varistor p. 21
- Indicators p. 21
- Active Circuit Components p. 23
- Vacuum Tubes p. 23
- Bipolar Transistors p. 23
- NPN and PNP Transistors p. 24
- Transistor Impedance and Gain p. 24
- Transistor Configurations p. 25
- Switching and Inductive-Load Ratings p. 25
- Noise p. 26
- Field-Effect Transistors p. 27
- FET Impedance and Gain p. 28
- Integrated Circuits p. 28
- Digital Integrated Circuits p. 29
- Linear Integrated Circuits p. 29
- Operational Amplifiers p. 29
- Current and Voltage Ratings p. 29
- Analog and Digital Circuits p. 30
- Single-Stage Transistor/FET Amplifier p. 30
- Impedance and Gain p. 32
- Common-Base or Common-Gate Connection p. 33
- Common-Collector or Common-Drain Connection p. 34
- Bias and Large Signals p. 34
- Digital Circuits p. 36
- Binary Coding p. 37
- Combinational Logic p. 37
- Logic Device Families p. 38
- Diode-Transistor Logic (DTL) p. 38
- Transistor-Transistor Logic (TTL) p. 39
- NMOS and PMOS p. 41
- Complementary MOS (CMOS) p. 41
- Emitter-Coupled Logic (ECL) p. 42
- Scaling of Digital Circuit Packages p. 43
- Representation of Numbers and Numerals p. 43
- Nibble p. 43
- Byte p. 44
- Word p. 44
- Negative Numbers p. 44
- Floating Point p. 44
- Compare p. 45
- Jump p. 45

- Errors in Digital Systems p. 45
- Error Detection and Correction p. 45
- Error Concealment p. 47
- References p. 47
- Bibliography p. 48
- Chapter 2 Reference Data, Tables, and Figures p. 49
- The Physical Nature of Sound p. 50
- The Audio Spectra p. 57
- Architectural Acoustic Principles and Design Techniques p. 64
- Light, Vision, and Photometry p. 77
- Color Vision, Representation, and Reproduction p. 83
- Optical Components and Systems p. 99
- Digital Coding of Audio/Video Signals p. 102
- Microphone Devices and Systems p. 111
- Sound Reproduction Devices and Systems p. 119
- Electron Optics and Deflection p. 135
- Video Cameras p. 139
- Monochrome and Color Image Display p. 142
- Audio/Video Recording Systems p. 159
- Audio/Video Production Standards, Equipment, and Design p. 174
- Film for Video Applications p. 195
- Audio/Video Compression Systems p. 200
- Audio/Video Networking p. 208
- Digital Broadcast Transmission Systems p. 220
- Frequency Bands and Propagation p. 234
- Radio/Television Transmission Systems p. 251
- Radio/Television Transmitting Antennas p. 280
- Radio/Television Receivers and Cable/Satellite Systems p. 293
- Audio/Video Signal Measurement and Analysis p. 311
- Standards and Practices p. 318
- Chapter 3 Standard Units and Conversion Ratios p. 323
- Standard Electrical Units p. 323
- Standard Prefixes p. 325
- Common Standard Units p. 325
- Conversion Reference Data p. 326
- Chapter 4 Dictionary of Audio/Video Terms p. 353
- Common Terms p. 358
- Bibliography p. 421
- Chapter 5 Acronyms and Abbreviations p. 423
- General Electronics Terms p. 423
- Bibliography p. 458
- Chapter 6 Reference Documents by Subject p. 459
- Introduction p. 459
- Audio p. 459
- Principles and Sound and Hearing p. 459
- The Audio Spectrum p. 462

- Architectural Acoustic Principles and Design Techniques p. 465
- Microphone Devices and Systems p. 465
- Sound Reproduction Devices and Systems p. 467
- Digital Coding of Audio Signals p. 468
- Compression Technologies for Audio p. 469
- Audio Networking p. 470
- Audio Recording Systems p. 472
- Audio Production Facility Design p. 474
- Radio Broadcast Transmission Systems p. 474
- Radio Receivers p. 477
- Standards and Practices p. 478
- Video p. 480
- Light, Vision, and Photometry p. 480
- Color Vision, Representation, and Reproduction p. 481
- Optical Components and Systems p. 484
- Digital Coding of Video Signals p. 484
- Electron Optics and Deflection p. 485
- Video Cameras p. 486
- Monochrome and Color Image Display Devices p. 488
- Video Recording Systems p. 496
- Video Production Standards, Equipment, and System Design p. 498
- Film for Video Applications p. 502
- Compression Technologies for Video and Audio p. 502
- Video Networking p. 505
- Digital Television Transmission Systems p. 507
- Frequency Bands and Propagation p. 513
- Television Transmission Systems p. 515
- Television Antenna Systems p. 518
- Television Receivers and Cable/Satellite Distribution Systems p. 520
- Video Signal Measurement and Analysis p. 524
- Standards and Practices p. 527
- Chapter 7 Index of Figures, Tables, and Subjects p. 531
- Introduction p. 531
- Index of Figures p. 531
- General Electronics p. 531
- The Physical Nature of Sound p. 532
- The Audio Spectra p. 533
- Architectural Acoustic Principles and Design Techniques p. 534
- Light, Vision, and Photometr p. 534
- Color Vision, Representation, and Reproduction p. 534
- Optial Components and Systems p. 535
- Digital Coding of Audio/Video Signals p. 535
- Microphone Devices and Systems p. 536
- Sound Reproduction Devices and Systems p. 536
- Electron Optics and Deflection p. 538
- Video Cameras p. 538

- Monochrome and Color Image Display p. 538
- Audio/Video Recording Systems p. 539
- Audio/Video Production Standards, Equipment, and Design p. 540
- Film for Video Applications p. 540
- Audio/Video Compression Systems p. 541
- Audio/Video Networking p. 541
- Digital Broadcast Transmission Systems p. 541
- Frequency Bands and Propagation p. 542
- Radio/Television Transmission Systems p. 542
- Radio/Television Transmitting Antennas p. 543
- Radio/Television Receivers and Cable/Satellite Systems p. 544
- Audio/Video Signal Measurement and Analysis p. 545
- Standards and Practices p. 545
- Index of Tables p. 545
- General Electronics p. 545
- The Physical Nature of Sound p. 546
- Architectural Acoustic Principles and Design Techniques p. 546
- Light, Vision, and Photometry p. 546
- Color Vision, Representation, and Reproduction p. 546
- Digital Coding of Audio/Video Signals p. 547
- Sound Reproduction Devices and Systems p. 547
- Electron Optics and Deflection p. 547
- Video Cameras p. 547
- Monochrome and Color Display p. 547
- Audio/Video Recording Systems p. 548
- Audio/Video Production Standards, Equipment, and Design p. 548
- Film for Video Applications p. 549
- Audio/Video Compression Systems p. 549
- Audio/Video Networking p. 549
- Digital Broadcast Transmission Systems p. 550
- Frequency Bands and Propagation p. 550
- Radio/Television Transmission Systems p. 550
- Radio/Television Transmitting Antennas p. 551
- Radio/Television Receivers and Cable/Satellite Systems p. 551
- Audio/Video Signal Measurement and Analysis p. 552
- Standards and Practices p. 552
- Subject Index p. 553
- About the Author p. 557