

www.mbsm.pro , Practical Electronics for Inventors, Fourth Edition

Category: Technologie,Web

written by mahdi miled | 23 November 2017

FOURTH EDITION

PRACTICAL ELECTRONICS FOR INVENTORS



PictureS Mbsm Dot Pro : www.mbsm.pro

Practical Electronics for Inventors, Fourth Edition

by: Paul Scherz, Dr. Simon Monk

Abstract: A fully updated, no-nonsense guide to electronics. Advance your electronics knowledge and gain the skills necessary to develop and construct your own functioning gadgets. Written by a pair of experienced engineers and dedicated hobbyists, Practical Electronics for Inventors, Fourth Edition, lays out the essentials and provides step-by-step instructions, schematics, and illustrations. Discover how to select the right components, design and build circuits, use microcontrollers and ICs, work with the latest software tools, and test and tweak your creations. This easy-to-follow book features new instruction on programmable logic, semiconductors, operational amplifiers, voltage regulators, power supplies, digital electronics, and more. Coverage includes:

- Resistors, capacitors, inductors, and transformers
- Diodes, transistors, and integrated circuits
- Optoelectronics, solar cells, and phototransistors
- Sensors, GPS modules, and touch screens
- Op amps, regulators, and power supplies
- Digital electronics, LCDs, and logic gates
- Microcontrollers and prototyping platforms
- Combinational and sequential programmable logic
- DC

motors, RC servos, and stepper motors • Microphones, audio amps, and speakers •
Modular electronics and prototypes

Book Details

Title: Practical Electronics for Inventors, Fourth Edition

Publisher: McGraw-Hill Education: New York, Chicago, San Francisco, Athens,
London, Madrid, Mexico City, Milan, New Delhi, Singapore, Sydney, Toronto

Copyright / Pub. Date: 2016 McGraw-Hill Education

ISBN: 9781259587542

Authors:

Paul Scherz is a Systems Operation Manager who received his B.S. in physics from the University of Wisconsin. He is an inventor/hobbyist in electronics, an area he grew to appreciate through his experience at the University's Department of Nuclear Engineering and Engineering Physics and Department of Plasma Physics. Dr. Simon Monk has a bachelor's degree in cybernetics and computer science and a Ph.D. in software engineering. He spent several years as an academic before he returned to industry, co-founding the mobile software company Momote Ltd. He has been an active electronics hobbyist since his early teens and is a full-time writer on hobby electronics and open-source hardware. Dr. Monk is author of numerous electronics books, including Programming Arduino, Hacking Electronics, and Programming the Raspberry Pi.

Description: A fully updated, no-nonsense guide to electronics. Advance your electronics knowledge and gain the skills necessary to develop and construct your own functioning gadgets. Written by a pair of experienced engineers and dedicated hobbyists, Practical Electronics for Inventors, Fourth Edition, lays out the essentials and provides step-by-step instructions, schematics, and illustrations. Discover how to select the right components, design and build circuits, use microcontrollers and ICs, work with the latest software tools, and test and tweak your creations. This easy-to-follow book features new instruction on programmable logic, semiconductors, operational amplifiers, voltage regulators, power supplies, digital electronics, and more. Coverage includes: • Resistors, capacitors, inductors, and transformers • Diodes, transistors, and integrated circuits • Optoelectronics, solar cells, and phototransistors • Sensors, GPS modules, and touch screens • Op amps, regulators, and power supplies • Digital electronics, LCDs, and logic gates • Microcontrollers and prototyping platforms • Combinational and sequential programmable logic • DC motors, RC servos, and stepper motors • Microphones, audio amps, and speakers • Modular electronics and prototypes

Table of Contents

A. ABOUT THE AUTHORS

B. PREFACE

C. ACKNOWLEDGMENTS

1. Introduction to Electronics

2. Theory

3. Basic Electronic Circuit Components

4. Semiconductors

5. Optoelectronics

6. Sensors

7. Hands-on Electronics

8. Operational Amplifiers

9. Filters
10. Oscillators and Timers
11. Voltage Regulators and Power Supplies
12. Digital Electronics
13. Microcontrollers
14. Programmable Logic
15. Motors
16. Audio Electronics
17. Modular Electronics
A. Power Distribution and Home Wiring
B. Error Analysis
C. Useful Facts and Formulas
Tools & Media
figure (1 036)
table (64)
Expanded Table of Contents
A. ABOUT THE AUTHORS
PREFACE PRELIMINARIES
ABOUT THE TECHNICAL EDITORS
B. PREFACE
PREFACE PRELIMINARIES
Notes about the Fourth Edition
C. ACKNOWLEDGMENTS
1. Introduction to Electronics
CHAPTER PRELIMINARIES
2. Theory
CHAPTER PRELIMINARIES
Theory of Electronics
Electric Current
Voltage
A Microscopic View of Conduction (for Those Who Are Interested)
Resistance, Resistivity, Conductivity
Insulators, Conductors, and Semiconductors
Heat and Power
Thermal Heat Conduction and Thermal Resistance
Wire Gauges
Grounds
Electric Circuits
Ohm's Law and Resistors
Voltage and Current Sources
Measuring Voltage, Current, and Resistance
Combining Batteries
Open and Short Circuits
Kirchhoff's Laws
Superposition Theorem
Thevenin's and Norton's Theorems
AC Circuits
AC and Resistors, RMS Voltage, and Current
Mains Power
Capacitors

Inductors
Modeling Complex Circuits
Complex Numbers
Circuit with Sinusoidal Sources
Power in AC Circuits (Apparent Power, Real Power, Reactive Power)
Thevenin's Theorem in AC Form
Resonant Circuits
Lecture on Decibels
Input and Output Impedance
Two-Port Networks and Filters
Transient Circuits
Circuits with Periodic Nonsinusoidal Sources
Nonperiodic Sources

SPICE

3. Basic Electronic Circuit Components

CHAPTER PRELIMINARIES

Wires, Cables, and Connectors

Batteries

Switches

Relays

Resistors

Capacitors

Inductors

Transformers

Fuses and Circuit Breakers

4. Semiconductors

CHAPTER PRELIMINARIES

Semiconductor Technology

Diodes

Transistors

Thyristors

Transient Voltage Suppressors

Integrated Circuits

5. Optoelectronics

CHAPTER PRELIMINARIES

A Little Lecture on Photons

Lamps

Light-Emitting Diodes

Photoresistors

Photodiodes

Solar Cells

Phototransistors

Photothyristors

Optoisolators

Optical Fiber

6. Sensors

CHAPTER PRELIMINARIES

General Principles

Temperature

Proximity and Touch

Movement, Force, and Pressure

Chemical

Light, Radiation, Magnetism, and Sound

GPS

7. Hands-on Electronics

CHAPTER PRELIMINARIES

Safety

Constructing Circuits

Multimeters

Oscilloscopes

The Electronics Laboratory

8. Operational Amplifiers

CHAPTER PRELIMINARIES

Operational Amplifier Water Analogy

How Op Amps Work (The “Cop-Out” Explanation)

Theory

Negative Feedback

Positive Feedback

Real Kinds of Op Amps

Op Amp Specifications

Powering Op Amps

Some Practical Notes

Voltage and Current Offset Compensation

Frequency Compensation

Comparators

Comparators with Hysteresis

Using Single-Supply Comparators

Window Comparator

Voltage-Level Indicator

Instrumentation Amplifiers

Applications

9. Filters

CHAPTER PRELIMINARIES

Things to Know Before You Start Designing Filters

Basic Filters

Passive Low-Pass Filter Design

A Note on Filter Types

Passive High-Pass Filter Design

Passive Bandpass Filter Design

Passive Notch Filter Design

Active Filter Design

Integrated Filter Circuits

10. Oscillators and Timers

CHAPTER PRELIMINARIES

RC Relaxation Oscillators

The 555 Timer IC

Voltage-Controlled Oscillators

Wien-Bridge and Twin-T Oscillators

LC Oscillators (Sinusoidal Oscillators)

Crystal Oscillators

Microcontroller Oscillators
11. Voltage Regulators and Power Supplies
CHAPTER PRELIMINARIES
Voltage-Regulator ICs
A Quick Look at a Few Regulator Applications
The Transformer
Rectifier Packages
A Few Simple Power Supplies
Technical Points about Ripple Reduction
Loose Ends
Switching Regulator Supplies (Switchers)
Switch-Mode Power Supplies (SMPS)
Kinds of Commercial Power Supply Packages
Power Supply Construction
12. Digital Electronics
CHAPTER PRELIMINARIES
The Basics of Digital Electronics
Logic Gates
Combinational Devices
Logic Families
Powering and Testing Logic ICs
Sequential Logic
Counter ICs
Shift Registers
Analog/Digital Interfacing
Displays
Memory Devices
13. Microcontrollers
CHAPTER PRELIMINARIES
Basic Structure of a Microcontroller
Example Microcontrollers
Evaluation/Development Boards
Arduino
Interfacing with Microcontrollers
14. Programmable Logic
CHAPTER PRELIMINARIES
Programmable Logic
FPGAs
ISE and the Elbert V2
The Elbert 2 Board
Downloads
Drawing Your FPGA Logic Design
Verilog
Describing Your FPGA Design in Verilog
Modular Design
Simulation
VHDL
15. Motors
CHAPTER PRELIMINARIES
DC Continuous Motors

Speed Control of DC Motors
Directional Control of DC Motors
RC Servos
Stepper Motors
Kinds of Stepper Motors
Driving Stepper Motors
Controlling the Driver with a Translator
A Final Word on Identifying Stepper Motors
16. Audio Electronics
CHAPTER PRELIMINARIES
A Little Lecture on Sound
Microphones
Microphone Specifications
Audio Amplifiers
Preamplifiers
Mixer Circuits
A Note on Impedance Matching
Speakers
Crossover Networks
Simple ICs Used to Drive Speakers
Audible-Signal Devices
Miscellaneous Audio Circuits
17. Modular Electronics
CHAPTER PRELIMINARIES
There's an IC for It
Breakout Boards and Modules
Plug-and-Play Prototyping
Open Source Hardware
A. Power Distribution and Home Wiring
APPENDIX PRELIMINARIES
Power Distribution
A Closer Look at Three-Phase Electricity
Home Wiring
Electricity in Other Countries
B. Error Analysis
APPENDIX PRELIMINARIES
Absolute Error, Relative Error, and Percent Error
Uncertainty Estimates
C. Useful Facts and Formulas
APPENDIX PRELIMINARIES
Greek Alphabet
Powers of 10 Unit Prefixes
Linear Functions ($y = mx + b$)
Quadratic Equation ($y = ax^2 + bx + c$)
Exponents and Logarithms
Trigonometry
Complex Numbers
Differential Calculus
Integral Calculus

1. <https://www.amazon.com/Practical-Electronics-Inventors-Fourth-Scherz/dp/1259587541> [back]

www-mbsm-pro-Practical-Electronics-for-Inventors-Fourth-Edition1.png (273 KB)



www-mbsm-pro-Practical-Electronics-for-Inventors-Fourth-Edition1.png (239 KB)



www-mbsm-pro-Practical-Electronics-for-Inventors-Fourth-Edition2.png (121 KB)



www-mbsm-pro-Practical-Electronics-for-Inventors-Fourth-Edition2.png (111 KB)



www-mbsm-pro-Practical-Electronics-for-Inventors-Fourth-Edition3.png (146 KB)



www-mbsm-pro-Practical-Electronics-for-Inventors-Fourth-Edition3.png (134 KB)



www-mbsm-pro-Practical-Electronics-for-Inventors-Fourth-Edition4.png (193 KB)



www-mbsm-pro-Practical-Electronics-for-Inventors-Fourth-Edition4.png (178 KB)



www.mbsm.pro , Finition Electricité partie 1

Category: Technologie

written by mahdi miled | 23 November 2017



PictureS Mbsm Dot Pro : www.mbsm.pro

www.mbsm.pro , Finition Électricité partie 1

Image : <https://www.facebook.com/www.hegay/>


[mbsm-dot-pro-electricitee-X.jpg](#) (49 KB)






[mbsm-dot-pro-electricitee-X.jpg](#) (57 KB)






[mbsm-dot-pro-electricitee-C.jpg](#) (22 KB)



 mbsm-dot-pro-electricitee-C.jpg (28 KB)



 mbsm-dot-pro-electricitee-D.jpg (29 KB)



 mbsm-dot-pro-electricitee-D.jpg (37 KB)



 mbsm-dot-pro-electricitee-E.jpg (28 KB)



 mbsm-dot-pro-electricitee-E.jpg (34 KB)



 mbsm-dot-pro-electricitee-F.jpg (42 KB)



 mbsm-dot-pro-electricitee-F.jpg (49 KB)



 mbsm-dot-pro-electricitee-G.jpg (42 KB)



 mbsm-dot-pro-electricitee-G.jpg (49 KB)



 mbsm-dot-pro-electricitee-H.jpg (31 KB)



 mbsm-dot-pro-electricitee-H.jpg (37 KB)



 mbsm-dot-pro-electricitee-I.jpg (28 KB)



 mbsm-dot-pro-electricitee-I.jpg (33 KB)



 mbsm-dot-pro-electricitee-W.jpg (55 KB)



 mbsm-dot-pro-electricitee-W.jpg (63 KB)



 mbsm-dot-pro-electricitee-K.jpg (34 KB)



 mbsm-dot-pro-electricitee-K.jpg (39 KB)



 mbsm-dot-pro-electricitee-M.jpg (29 KB)

 mbsm-dot-pro-electricitee-M.jpg (35 KB)


 mbsm-dot-pro-electricitee-N.jpg (47 KB)

 mbsm-dot-pro-electricitee-N.jpg (54 KB)


 mbsm-dot-pro-electricitee-0.jpg (37 KB)



mbsm-dot-pro-electricitee-0.jpg (45 KB)



mbsm-dot-pro-electricitee-P.jpg (42 KB)



mbsm-dot-pro-electricitee-P.jpg (47 KB)



mbsm-dot-pro-electricitee-Q.jpg (58 KB)



mbsm-dot-pro-electricitee-Q.jpg (69 KB)



mbsm-dot-pro-electricitee-R.jpg (50 KB)



mbsm-dot-pro-electricitee-R.jpg (58 KB)



mbsm-dot-pro-electricitee-S.jpg (43 KB)



mbsm-dot-pro-electricitee-S.jpg (52 KB)



mbsm-dot-pro-electricitee-Y.jpg (71 KB)



mbsm-dot-pro-electricitee-Y.jpg (82 KB)



mbsm-dot-pro-electricitee-V.jpg (33 KB)



mbsm-dot-pro-electricitee-V.jpg (41 KB)

