

Preface

The scope of the book covers most of the aspects as a primer on power electronics starting from a simple diode bridge to a DC–DC converter using PWM control. The thyristor-bridge and the mechanism of forming a closed-loop system are discussed in Chaps. 1–3. The concepts are applied in Chap. 4 as a case study for buck converter which uses MOSFETs as switching devices and the closed-loop system is elaborated in Chap. 5. Chapter 6 is focused on the embedded system basics and the implementation of controls in the digital domain. The reader will find it easy to work on the practical control systems with microcontroller implementation.

The primary intent of this book is to help the reader gain an accelerated learning path to practical control system engineering and transform control theory to an implementable control system through electronics. Illustrations are provided for most of the examples with fundamental mathematics along with simulations of the systems with their relevant equations and stability calculations.

There are books elaborating on power electronics devices, power electronics applications, microcontrollers, and control system theory which can be used as a reference by the reader. The difference between specialized books and this book is that this book focuses on building practical blocks leveraging a basic understanding of electronic devices, simulations, and microcontrollers.

After reading this book, engineers will have a sound understanding of practical control system engineering. This will help them apply their domain knowledge to real product development.

<http://www.springer.com/978-81-322-2327-6>

Control Systems for Power Electronics

A Practical Guide

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2015, XVII, 53 p. 41 illus., 21 illus. in color., Softcover

ISBN: 978-81-322-2327-6