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Book Review

Industrial Electonics: Devices and Systems, Second Edition, by Dale R. Patrick and Stephen W. Fardo, The Fairmont Press, Marcel-Dekker, Inc., 2000, ISBN 0-88173-320-2 (The Fairmont Press), 0-8247-0501-7 (Marcel-Dekker), 671 pp., Price $195.00

REVIEWED BY ANTHONY J. RAFANELLI[1]

Dale Patrick and Stephen Fardo have produced a very good resource on devices and systems for any engineers. By ''any,'' this reviewer is emphasizing the ease at which the material is presented. The book covers a broad spectrum of topics. Several chapters are worth noting. Chapter 1 is an overview and uses a systems concept in presenting ideas. A very good definition of an ''industrial system'' is provided with each part of the system clearly defined. Chapter 2 addresses industrial electronics sources and power supplies dealing with system energy sources both AC and DC. Particularly worth noting is the nice job of defining single phase versus three phase generators (even this mechanical engineering reviewer understood the concept).

Chapter 3 deals with amplification. The chapter could be enhanced with some dialogue on why amplification is needed in an industrial system; this question was not clearly addressed in the beginning of the chapter. The chapter also includes a comprehensive discussion of bipolar junction transistors, junction field-effect transistors and insulated-gate field-effect transistors. Most of the chapters focus on specific device types or groups. Chapter 7 presented an excellent portrayal of industrial transducers doing an effective job of distinguishing between active and passive devices. Included in this chapter is a section on strain gauge technology.

Chapter 10 features discussions in microprocessors and included a thorough explanation of computer basics providing excellent definitions and graphics for the ''non-computer'' type of engineer. Chapter 14 focused on opto-electronic systems and proved to be a very comprehensive section providing an abundant amount of information on light and all associated concepts as applied to devices. With today's ever expanding dependence on light as an information carrier, the chapter would be a valuable source of applications information for all engineers and applied scientists. The authors might consider, in future editions, expanding the chapter to include a focused discussion on monitors and displays which provide an excellent chance to appreciate direct transfer of light concepts into applications.

The book is arranged as a text with problems/exercises at the end of each chapter. Graphics are very good with an effective mix of photographs and figures. One minor inconsistency noted was the use of an ''Objectives'' list at the beginning of Chapters 8 and 12 but not consistently used in the other chapters. Use of a ''what you will learn'' type of list at the beginning of a chapter is an effective means for the reader to benchmark his/her learning progress. This reviewer wonders why this format was not used throughout the book.

In concluding, this book is an excellent resource for all engineers. It appears to especially cater to the non-electrical, non-electronic engineer in that it provides many examples and graphics of concepts in an applied mode. (However, the book would also benefit electrical/electronic engineers as well.) This work is a recommended addition to any engineer's library.

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