Programmable Controllers Using Allen-Bradley SLC500 and Control-Logix

Robert Filer, George Leinonen
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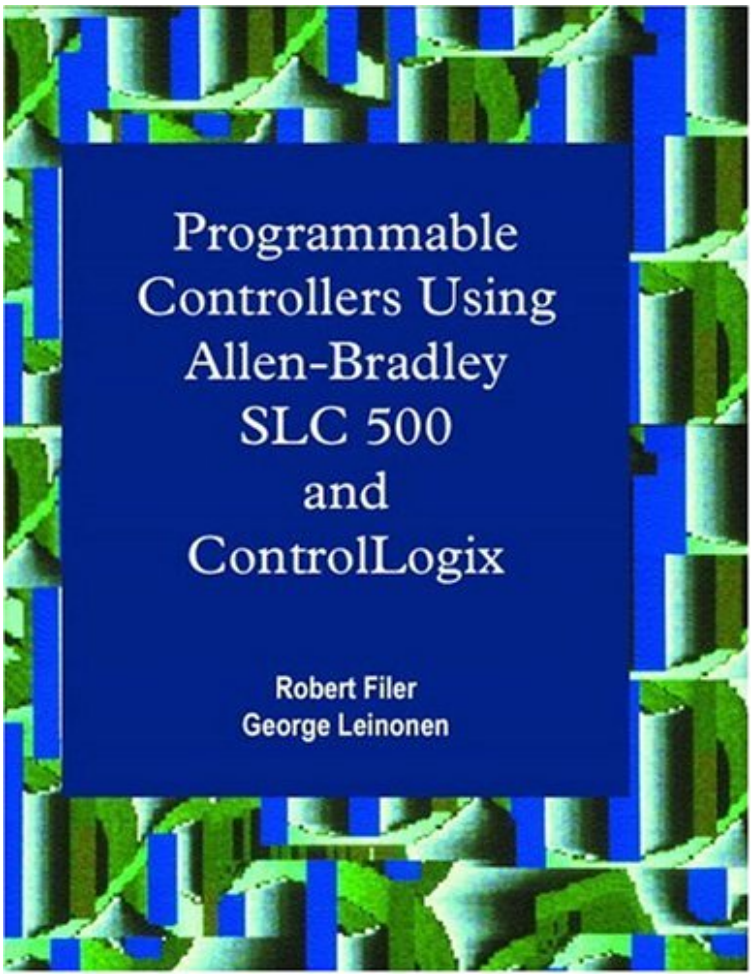

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Robert Filer, George Leinonen : Programmable Controllers Using Allen-Bradley SLC500 and Control-Logix before purchasing it in order to gage whether or not it would be worth my time, and all praised Programmable Controllers Using Allen-Bradley SLC500 and Control-Logix:

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For two-semester, introductory and advanced courses in programmable controllers in departments of engineering, engineering technology, and science.Written around Allen-Bradley's popular programmable controllers, this self-contained, state-of-the-art text teaches students how to write sophisticated programs on a real PLC--the PLC they are most likely to encounter in the industry. It contains a wealth of structured programming examples, and the up-to-date ControlLogix processor.

From the Back Cover The best way to learn about programmable controllers is to take a hands-on approach to writing control programs. This book walks readers through many examples and programs, covering the basics as well as the complexities of sequential and automatic control and the latest changes in programmable controller technology. Upon completion, readers will be able to write complex programs using state diagramming, zone control, subroutines, and sequential function charts. The text has many features that help reinforce learning, including: A historical overview. Chapter outlines and objectives designed to point out important issues. Numerous examples, photos, tables, and illustrations. Exercises designed to test retention of key topics. Appendices on Relay Logic, ControlLogix Status, and SLC 500 Series Status. Answers to odd-numbered problems. Instructors using the text for a course may want to obtain the Instructor's Manual (ISBN: 0-13-092393-1). Excerpt. Reprinted by permission. All rights reserved. George and I wrote a previous book entitled Programmable Controllers and Designing Sequential Logic. It has been successful, but the material is now dated. We both teach programmable controller courses; George teaches at Rockwell Automation/Allen Bradley and I teach at Michigan Technological University. Our combined industrial and academic experiences have enabled us to write a book that will be useful to those in a classroom and those in the field. Since the publication of our original book, Allen Bradley merged with Rockwell Automation and introduced many new versions of equipment and software. Programmable Controllers Using Allen-Bradley SLC 500 and ControlLogix covers these changes in programmable controller technology and introduces automatic control. I have used drafts of the text in my classes at Michigan Tech, where my students have been very helpful in testing the accuracy and usefulness of the material. The exercises in each chapter have been assigned to students, who have worked out all the bugs. This book is designed for engineering, engineering technology, and science students, in both electrical and mechanical programs at the associate, bachelor, master, and PhD levels. While teaching at Allen-Bradley, George has had an even broader group of students from industry. This book is intended to be taught over the course of two college semesters, the first semester to introduce programmable controllers and the second semester for advanced programmable controllers. We have covered both sequential control and automatic control via the PID instruction. There are many example programs, most written using the SLC 500 and the ControlLogix instruction set. Upon finishing the course, students are able to write complex programming using state diagramming, zone control, subroutines, and sequential function charts. OVERVIEW The best way to learn about programmable controllers is the hands-on approach of writing control programs. This textbook is intended to be used in this way. Chapter 2, Interfacing and Ladder-Logic Fundamentals and Appendix A, Relay Control, are designed to give students enough information to get started with some simple I/O instructions in the first week of class. I recommend 2 hours of lecture and 3 hours of laboratory time writing and executing programs each week. Chapters 3 through 9 systematically take students through SLC 500 and Controllrogix architecture and instruction sets. While covering this material, students learn specific instruction sets each week at the rate of one chapter per week. Chapter 10, Structured Programming on the PLC is designed to be used in both introductory and advanced courses. The introductory course covers state diagrams implemented via zone and subroutine. Sequential function charts are usually covered in the advanced course. Chapters 10 through 13 are used for the advanced course, in which students are assigned control problems that may each take 3 to 4 weeks to complete. Chapter 12, Automatic Control Using PID Instruction, introduces automatic control, scaling, and PID tuning. Upon finishing the course, students will have a strong background in programmable controllers, and they are prepared to go into industry and start writing programs immediately. This book would also be quite helpful to a person in industry who needs to know more about programmable controllers. The main purpose of the text is to teach programming, which is accomplished by leading the reader through a systematic set of steps. It is designed to lead the user away from writing trial-and-error programs and toward using a structured method. Structured programs are much easier to follow, troubleshoot, and document. Finally, the text makes a good reference book. It is common to forget what is required if an engineer or technician does not use an instruction often enough. With this book, he or she can easily look up what is needed. Excerpt. Reprinted by permission. All rights reserved. George and I wrote a previous book entitled Programmable Controllers and Designing Sequential Logic. It has been successful, but the material is now dated. We both teach programmable controller courses; George teaches at Rockwell Automation/Allen Bradley and I teach at Michigan Technological University. Our combined industrial and academic experiences have enabled us to write a book that will be useful to those in a classroom and those in the field. Since the publication of our original book, Allen Bradley merged with Rockwell Automation and introduced many new versions of equipment and software. Programmable Controllers Using Allen-Bradley SLC 500 and ControlLogix covers these changes in programmable controller technology and introduces automatic control. 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