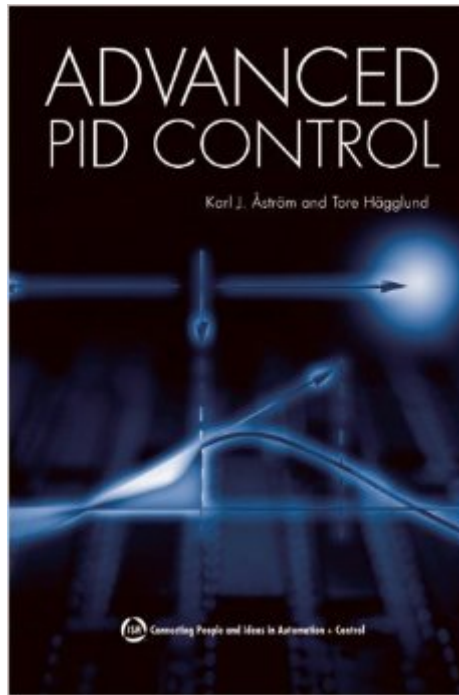


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# Advanced PID Control



## Synopsis

The authors of the best-selling book *PID Controllers: Theory, Design, and Tuning* once again combine their extensive knowledge in the PID arena to bring you an in-depth look at the world of PID control. A new book, *Advanced PID Control* builds on the basics learned in *PID Controllers* but augments it through use of advanced control techniques. Design of PID controllers are brought into the mainstream of control system design by focusing on requirements that capture effects of load disturbances, measurement noise, robustness to process variations and maintaining set points. In this way it is possible to make a smooth transition from PID control to more advanced model based controllers. It is also possible to get insight into fundamental limitations and to determine the information needed to design good controllers. The book provides a solid foundation for understanding, operating and implementing the more advanced features of PID controllers, including auto-tuning, gain scheduling and adaptation. Particular attention is given to specific challenges such as reset windup, long process dead times, and oscillatory systems. As in their other book, modeling methods, implementation details, and problem-solving techniques are also presented.

## Book Information

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Average Customer Review: 4.2 out of 5 stars Â Â See all reviews Â (4 customer reviews)

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## Customer Reviews

This is the best book I've seen on applied controls, period. The only reason I didn't give it a full 5 stars is that it often makes jumps in the math, without showing the derivations to make those jumps.

I can see leaving out the steps in the main body of the text to avoid cluttering up the presentation, but I'd like to see them put the details in the Appendix. Beyond that, the book is impressive in its breadth of coverage, and does a fine job going between the fairly practical and fairly analytical. This would make a great grad course just by itself.

The PID controller is the most common solution to practical control problems, especially in process industries. This fact makes extremely important for any individual involved in Process control to have an excellent understanding of its design, tuning and applications. This book is the last part of a trilogy. The first book, Automatic Tuning of PID Controllers, 1988, which had 6 chapters, gave a short description of the authors early experiences with development of relay auto tuners. The second book, PID Controllers: Theory, Design, and Tuning, 1995, which has 7 chapters, grew out of the need for a broader coverage of many aspects of PID control. In particular, it reviews many design methods for PID controllers that the authors investigated in connection with their work on auto tuners. This book, the last of the trilogy, has 13 chapters that deals with essential topics like: Process Models, Controller Design, Controller Tuning, Loop Performance Assessment, Interactions, Predictive Control, Control Paradigms, and implementation. I am an Industrial Practitioner of Process Control. I have been working for more than 16 years as an Instrumentation, Automation, and Process Safety and Control Engineer for the Oil & Gas Industry. I have found this book to be a useful reference in my day to day activities.

PID (proportional-Integral-Derivative) controllers have become the technology of choice in a large percentage of control circuits. The basic concept of a PID controller is that they compare a measured value from a process with a reference setpoint value. The difference is then processed to change the various inputs when can then bring the measured value to desired value. PID controllers are not new, their development began at least 250 years ago with purely mechanical controllers such as the centrifugal governors on steam engines. Now, of course the new controllers are primarily electronic. This book covers nearly every aspect of using PID controllers. It combines a mathematical approach to control analysis along with discussion on PID devices and real world examples of problems and their solutions. The authors are in the Department of Automatic Control at Lund University in Sweden. The book is published by the Instrumentation, Systems, and Automation Society. It is suitable for either classroom or individual use.

This book just seems like an overview of PID Control. I have found it hard to stay interested in the

text.

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