



Harnessing the Power of the Modern Control System - BBBB (Buy)

Advanced Control Unleashed by Terrence Blevins, Gregory McMillian, Willy Wojsznis, and Michael Brown
Reviewed by Nick Sands

The four authors; Terrence Blevins, Gregory McMillian, Willy Wojsznis, and Michael Brown have a combination of tremendous knowledge and extensive experience. This book succeeds in its goal of providing a quick tour of the most in vogue advanced control techniques; performance monitoring, abnormal situation management, automated tuning, fuzzy logic control, property estimation, model predictive control, and the virtual plant. That is quite a bit of ground to cover, and it doesn't even include the longest chapter on setting the foundation, in which the authors share enough tips on basic control problems to fill another book. The chapters are broken down into sections on practice, application, and theory. Sometimes the sections seem redundant or even out of sequence, as in the MPC chapter.

System performance provides a method to monitor equipment and controller performance using direct connection to process data provided in the "modern control system", (Delta V is left unnamed). Performance monitoring is one of the hottest trends in process control. Abnormal situation management is another hot topic. The authors follow the recommendation of the ASM consortium and suggest the answer is an expert system.

Automated tuning is a very interesting chapter. Auto tuning in the modern control system is a tool for the knowledgeable control engineer. Mass tuning on startup is easy, and periodic retuning can improve performance. The auto tuner even works on the fuzzy logic controller, the next topic. In the modern control system a fuzzy logic controller is just a function block. Using it still takes an understanding of the theory, which is provided. But even after reading the chapter, it may be a challenge to find a good fuzzy application.

The final chapters are all about models. Property estimators, often called virtual sensors, are covered with some very good tips for development. The top dog of advanced process control, model predictive control is also a function block. The theory section has to be one of the best explanations of MPC. The technology and its current implementation are fully discussed. Many development steps have been automated in the modern control system for both property estimators and MPC. Finally the benefits of dynamic simulation to generate the virtual plant are discussed.

This is quite a book. While it is written for the state of the art modern control system, the theory sections are good topic reviews by real experts. The back to basics section is crammed full of tips. The auto tuning section is good enough to make even the reluctant control engineer try the new tools. This book is not cheap at \$79 (member price) from ISA press, and not short at 429 pages, but it is a good resource on advanced control. I rate it an expensive buy. (BBBB).