



The Next Phase - BBBB (Buy)

Batch Control Systems: Design, Application, and Implementation, 2nd Edition by William Hawkins and Thomas Fisher

Reviewed by Nick Sands

Finally, the long awaited 2nd edition of the classic Batch Control Systems has arrived. This edition was written by William Hawkins in dedication to Thomas Fisher, regarded as the father of batch automation. Hawkins has an impressive background; a BS in ME from MIT, 20 years as an engineer with Hercules, 20 years with Rosemount as a manager and architect for control systems, including RS3, and 5 years as a consultant with HLQ Ltd. Along the way he has worked on both S50, the fieldbus standard, and of course S88 (ANSI/ISA 88.01-1995 Batch Control Part 1: Models and Terminology), the batch control standard. Hawkins was one of the founding members of the World Batch Forum, and its first Treasurer. He is a Senior Member of ISA.

The first group of chapters serves as an introduction, to manufacturing processes, to process design, to process control, to controlled equipment, and to recipes. Just as in S88.01, the purpose here is to build a common language. Most important is to understand the definition of a batch process: a process that leads to the production of finite quantities of material by subjecting quantities of input materials to an ordered set of processing activities over a finite period of time using one or more pieces of equipment. The concepts of controlled equipment and recipes are key to understanding the rest of the book.

The middle chapters, the core of the book, explain the concepts and model of S88.01. There is a lot to absorb here. The SP88 committee took years to refine the ideas of batch control and show them in the cactus model, the entity relationship models, and the state transition diagrams. The physical model, the procedural control model, and the control activity model are all described along with other possible models or background on how the final model was selected. The short chapters break this into digestible pieces.

In the final chapters Hawkins provides some guidance that only comes from experience. Chapter 14 provides extensions, clarifications and suggestions on some tricky situations. Chapter 15 outlines a process for designing an S88 implementation. Chapter 16 hints at other standards and efforts that may influence future versions of S88, particularly the SP95 committee working on Manufacturing Enterprise Integration and Fieldbus technology.

Hawkins has performed a great service to the automation profession and an honor to the memory of the late great Tom Fisher with his update of Batch Control Systems. The book is a guide to the S88.01 standard and beyond. It explains, step by step, the concepts of the standard, and develops those concepts to a higher level of detail. It may take more than a single pass for many readers to comprehend the intricacies of S88. The only thing missing is a more comprehensive example. This is a buy (BBBB) for any automation professional not already an expert in batch. Find it at ISA.Org for \$89 (member price).