1. Record Nr. UNINA9910457939803321

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Titolo	Practical batch process management [[electronic resource] /] / Mike Barker, Jawahar Rawtani
Pubbl/distr/stampa	Amsterdam ; ; Boston, : Elsevier/Newnes, 2005
ISBN	1-280-62917-7 9786610629176 0-08-045543-3
Descrizione fisica	1 online resource (189 p.)
Collana	Practical professional books from Elsevier
Altri autori (Persone)	RawtaniJawahar
Disciplina	670.4/27
Soggetti	Process control Electronic data processing - Batch processing Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Front cover; Contents; 1. Introduction; 1.1 Introduction; 1.2 Identification of batch processes; 1.3 Background of the need for integrated batch systems; 1.4 Overview of batch systems engineering; 1.5 Introduction to standards; 2. Identify and define physical models; 2.1 Introduction; 2.2 Define the physical model; 2.3 Define tags; 3. Identify and define process models, actions, operations and stages; 3.1 Introduction; 3.2 Process model; 3.3 Relationship between process model and physical model; 4. Identify and define procedural models; 4.1 Introduction; 4.2 Procedural model 4.3 Concept of equipment entities5. Introduction to recipes; 5.1 Introduction; 5.2 S88 recipe model; 5.3 Types of recipes; 5.4 Building recipe procedures; 6. Batch manufacturing basics; 6.1 Introduction; 6.2 Batch numbering, tracking and reporting; 6.3 Batch planning and scheduling; 7. Batch and sequence programming fundamentals; 7.1 Introduction; 7.2 Techniques for batch control elements; 7.3 Implementation; 7.4 Interaction with continuous process sections; 8. Practical techniques in sequence control design; 8.1 Introduction; 8.2 Programming PLCs/DCS 8.3 Practical methods of functional specification8.4 Defining equipment

procedures; 8.5 Phase logic programming; 8.6 Phase logic interface; 9. Operator and supervisor interface; 9.1 Introduction; 9.2 Display screens for batch management; 9.3 Guidelines for building user interfaces; 9.4 Consideration of human and ergonomic factors; 10. Batch management issues; 10.1 Introduction; 10.2 Control activity model; 10.3 Practical problems in batch management; 10.4 Implementation of safety issues in batch management; 11. Batch control technologies; 11.1 Introduction
11.2 Overview of DCS/PLC architecture11.3 Integration of batch control systems to production management and ERP systems; 11.4 Standards for enterprise/control systems integration; 11.5 Sending process quality and production reports back to ERP; 12. Practical software project planning and implementation; 12.1 Introduction; 12.2 What to look for in batch software packages; 12.3 Batch control software products; Exercises; Apprendix A: Modular approach; A. 1 Introduction; A. 2 Concepts of modular manufacturing; A. 3 Modular approach in batch process manufacturing
A. 4 Modularity using ISA S88 standardAppendix B: Case study of batch automation in a biotech manufacturing plant; B.1 Introduction; B.2 Introduction of manufacturing facility; B.3 The manufacturing process; B.4 The automation project objectives and requirements; B.5 The batch system requirements; B.6 The system architecture; B.7 The plant startup and validation; B.8 Conclusion; Solutions; Index

Sommario/riassunto

Historically batch control systems were designed individually to match a specific arrangement of plant equipment. They lacked the ability to convert to new products without having to modify the control systems, and did not lend themselves to integration with manufacturing management systems. Practical Batch Management Systems explains how to utilize the building blocks and arrange the structures of modern batch management systems to produce flexible schemes suitable for automated batch management, with the capability to be reconfigured to use the same plant equipment in different combinati