



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 20720.3-2022

**Enterprise-control system integration - Part 3: Activity models
of manufacturing operations management**

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3.1 Terms and Definitions

foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules of Standardization Documents" drafted.

This document is part 3 of GB/T 20720. GB/T 20720 "Enterprise Control System Integration" has released the following parts.

- Part 1. Models and terminology;
- Part 2. Objects and attributes of enterprise control system integration;
- Part 3. Activity model for manufacturing operations management;
- Part 4. Object model attributes for manufacturing operations management integration;
- Part 5. Transactions between business and manufacturing.

This document replaces GB/T 20720.3-2010 "Enterprise Control System Integration Part 3. Manufacturing Operation Management Activity Model", and

Compared with GB/T 20720.3-2010, in addition to structural adjustment and editorial changes, the main technical changes are as follows.

- a) Deleted "manufacturing operation management" (see 4.1 of the 2010 edition);
- b) Deleted "Functional Hierarchy" (see 4.2 of the 2010 edition);
- c) Deleted "Criteria for the definition of activities below Tier 4" (see 4.4 of the 2010 edition);
- d) Deleted "Classification of production information" (see 4.5 of the 2010 edition);
- e) Deleted "manufacturing operation information" (see 4.6 of the 2010 edition);
- f) Deleted "Extension of Equipment Hierarchy Model" (see 5.3 of the 2010 edition);

- g) Deleted "Extension of Decision Hierarchy Model" (see 5.4 of the 2010 edition);
- h) Changed data names to match GB/T 20720.4 names. Names in all images and text have been modified. the following

Data names have been changed or added.

- 1) The detailed production schedule is changed to work schedule;
- 2) The production dispatch list is changed to the job list;
- 3) Change the production work order to a job order;
- 4) The work order is changed to a job order;
- 5) The detailed maintenance schedule is changed to work schedule;
- 6) Detailed inventory scheduling is changed to work scheduling;
- 7) Add working master as an object to define working methods;
- 8) Add work calendar management as a resource management task;
- 9) Added the creation of work records as a tracking task.

This document is equivalent to IEC 62264-3:2016 "Enterprise Control System Integration Part 3: Manufacturing Operation Management Activity Model".

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

Introduction

The ever-increasing requirements for safe production, lean production and production quality in enterprises have made smart factories a must for modern manufacturing enterprises.

The inevitable choice of fierce market competition. The core supporting technology of smart factory is the integration of enterprise system and control system, which requires the manufacturing execution system.

System (MES) and its related systems have a well-defined structure with a level of complexity commensurate with production activities.

GB/T 20720 unifies the terminology of MES system integration, the information object model and its data structure, and the active object model. Siemens

The MES system developed by GE and GE refers to this series of standards from the architecture design to the application modules, which fundamentally meets the requirements of enterprise management and control.

system integration needs. See Appendix C for the general industry applicability and relevance of these models.

GB/T 20720 consists of five parts.

--- Part 1. Models and terminology. Clarify the relevant functions of the enterprise business system and the manufacturing control system and the normal information that can be carried out

field of exchange.

--- Part 2. Objects and attributes of enterprise control system integration. The definitions of these objects and attributes are used in control systems and enterprise systems

System integration and improved communication between all parties involved.

--- Part 3. Activity model for manufacturing operations management. Establishment of activity models to reduce and use enterprise systems and manufacturing operating systems associated risks, costs and errors in order to make them interoperable and easier to integrate. It can also be used to reduce the cost of launching new products workload.

--- Part 4. Object model attributes for manufacturing operations management integration. Standard terminology and systems established for objects that perform management activities

A concept and model that enables interoperability and easy integration of manufacturing operations management systems.

--- Part 5. Transactions between business and manufacturing. The interface problems in the integration of enterprise control systems are explained intensively, and the transaction switching tools are determined.

level of demand.

Parts 2 through 5 describe the different layers of the object model described in Part 1 and the definitions, models, and data flows between them

Illustrated how the information exchange described in Part 1 can be delivered in a robust, secure, and cost-effective manner

Replacement, to ensure the integrity of the entire system.

Enterprise Control System Integration

Part 3. Activity Model for Manufacturing Operations Management

1 Scope

This document defines a manufacturing operations management activity model that enables the integration of enterprise systems and control systems. Activities as defined in this document

The movement is consistent with the definition of the object model given in IEC 62264-1. Modeled activities run between business planning and logistics functions, which Process control functions that shall be defined as layer 4 functions and shall be defined as layer 2 functions in IEC 62264-1, respectively. Scope of this document

Limited to.

- Activity model related to manufacturing operations management, layer 3 functions;
- Identify the partial data exchange between layer 3 activities.

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, dated citations

documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to this document.

IEC 62264-1 Enterprise Control System Integration Part 1. Models and Terminology (Enterprise-controlsystem

Note. GB/T 20720.1-2019 Enterprise Control System Integration Part 1. Models and Terminology (IEC 62264-1.2013, IDT)

IEC 62264-2 Enterprise Control System Integration Part 2. Objects and Attributes for Enterprise Control System Integration (Enterprise-

Note. GB/T 20720.2-2020 Enterprise Control System Integration Part 2. Objects and Attributes of Enterprise Control System Integration (IEC 62264-2.2013, IDT)

ISO 22400-1 Key performance indicators (KPIs) for automated systems and integrated manufacturing operations management - Part 1. Overview, concepts and

Note. GB/T 34044.1-2019 Key performance indicators for automated systems and integrated manufacturing operations management - Part 1. Overview, concepts and terms (ISO 22400-1.2014, IDT)

ISO 22400-2 Key performance indicators (KPIs) for automated systems and integrated manufacturing operations management - Part 2. Definition and description

Note. GB/T 34044.2-2017 Key performance indicators for automated systems and