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BSI Standards Publication

Enterprise-control system integration

Part 3: Activity models of manufacturing operations management

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National foreword

This British Standard is the UK implementation of EN 62264-3:2017. It is identical to IEC 62264-3:2016. It supersedes BS EN 62264-3:2007, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee AMT/7, Industrial communications: process measurement and control, including fieldbus.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Published by BSI Standards Limited 2017

ISBN 978 0 580 88476 4

ICS 25.040.40; 35.240.50; 25.040.01

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 June 2017.

Amendments/corrigenda issued since publication

Date	Text affected

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EUROPEAN STANDARD **EN 62264-3**

EUROPÄISCHE NORM March 2017

ICS 25.040.01; 35.240.50 Supersedes EN 62264-3:2007

English Version

Enterprise-control system integration - Part 3: Activity models of manufacturing operations management (IEC 62264-3:2016)

Intégration des systèmes entreprise-contrôle - Partie 3: Modèles d'activités pour la gestion des opérations de fabrication (IEC 62264-3:2016)

Integration von Unternehmensführungs- und Leitsystemen - Teil 3: Aktivitätsmodelle für das Betriebsmanagement (IEC 62264-3:2016)

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The text of document 65E/456/CDV, future edition 2 of IEC 62264-3, prepared by SC 65E “Devices and integration in enterprise systems” of IEC/TC 65 “Industrial process measurement, control and automation" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62264-3:2017.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2017-10-20
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2020-01-20

This document supersedes EN 62264-3:2007.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 62264-3:2016 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 61512-1	NOTE	Harmonized as EN 61512-1
IEC 61512-2	NOTE	Harmonized as EN 61512-2
IEC 62264-4	NOTE	Harmonized as EN 62264-4

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Annex ZA
(normative)
Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 62264-1	-	Enterprise-control system integration -- Part 1: Models and terminology	EN 62264-1	-
IEC 62264-2	-	Enterprise-control system integration - Part 2: Objects and attributes for enterprise-control system integration	EN 62264-2	-
ISO 22400-1	-	Automation systems and integration - Key performance indicators (KPIs) for manufacturing operations management - Part 1: Overview, concepts and terminology	-	-
ISO 22400-2	-	Automation systems and integration - Key performance indicators (KPIs) for manufacturing operations management - Part 2: Definitions and descriptions	-	-

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ENTERPRISE-CONTROL SYSTEM INTEGRATION –

Part 3: Activity models of manufacturing operations management

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 62264-3 has been prepared by subcommittee 65E: Devices and integration in enterprise systems, of IEC technical committee 65: Industrial-process measurement, control and automation and ISO SC5, JWG 15, of ISO technical committee 184: Enterprise-control system integration.

It is published as a double logo standard.

This second edition cancels and replaces the first edition published in 2007. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) 4.1 Manufacturing Operations Management was moved to Part 1 and therefore was removed from Part 3;
b) 4.2 Functional hierarchy was moved to Part 1 and therefore was removed from Part 3;

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c) 4.4 Criterion for defining activities below Level 4 was moved to Part 1 and therefore was removed from Part 3;

d) 4.5 Categories of production information was moved to Part 1 and therefore was removed from Part 3;

e) 4.6 Manufacturing operations information was moved to Part 1 and therefore was removed from Part 3;

f) 5.3 Expanded equipment hierarchy model was moved to Part 1 and therefore was removed from Part 3;

g) 5.4 Expanded decision hierarchy model was removed from Part 3. The corresponding section was removed from Part 1 and replaced with a reference to ISO 15704;

h) Annex A (informative) Other enterprise activities affecting manufacturing operations was moved to Part 1 and therefore was removed from Part 3;

i) Annex D (informative) Associated standards was moved to Part 1 and therefore was removed from Part 3;

j) Annex F (informative) Applying the decision hierarchy model to manufacturing operations management was removed from Part 3. The corresponding section was removed from Part 1 and replaced with a reference to ISO 15704;

k) Annex G (informative) Mapping PSLX ontology to manufacturing operations management was removed from Part 3. The committee felt that this section is more appropriate as a PSLX white paper or TR;

l) The names for data were changed to match the Part 4 standard names. These name changes were made in all figures and in the text. The following data names were changed or added:

   1) Detailed Production Schedule changed to Work Schedule,
   2) Production Dispatch List changed to Job list,
   3) Production Work Order changed to Job Order,
   4) Work Order changed to Job Order,
   5) Detailed Maintenance Schedule changed to Work Schedule,
   6) Detailed Inventory Schedule changed to Work Schedule,
   7) The addition of Work Masters as objects that define how work is to be done,
   8) The addition of the management of Work Calendars as a task in resource management,
   9) The addition of the creation of Work Records as a task in tracing.

The text of this standard is based on the following documents:

CDV	Report on voting
65E/456/CDV	65E/513/RVC

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table. In ISO, the standard has been approved by 10 P-members out of 10 having cast a vote.

This publication has been drafted in accordance with ISO/IEC Directives, Part 2.

A list of all parts in the IEC 62264 series, published under the general title *Enterprise-Control system integration*, can be found on the IEC website.

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The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

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INTRODUCTION

This part of IEC 62264 shows activity models and data flows for manufacturing information that enables enterprise-control system integration. The modelled activities operate between Level 4 logistics and planning functions and Level 2 manual and automated process control functions. The models are consistent with the object models given in IEC 62264-2 and the Level 3 (manufacturing operations and control) definitions.

The goal of the standard is to reduce the risk, cost and errors associated with implementing enterprise systems and manufacturing operations systems in such a way that they inter-operate and easily integrate. The standard may also be used to reduce the effort associated with implementing new product offerings.

This standard provides models and terminology for defining the activities of manufacturing operations management. The models and terminology defined in this standard are:

– to emphasize the good practices of manufacturing operations;
– to be used to improve existing manufacturing operations systems;
– to be applied regardless of the degree of automation.

Some potential benefits produced when applying the standard may include:

– reducing the time to reach full production levels for new products;
– enabling vendors to supply appropriate tools for manufacturing operations;
– enabling more uniform and consistent identification of manufacturing needs;
– reducing the cost of automating manufacturing processes;
– optimizing supply chains;
– improving efficiency in life-cycle engineering efforts.

It is not the intent of this part of the standard to:

– suggest that there is only one way of implementing manufacturing operations;
– force users to abandon their current way of handling manufacturing operations;
– restrict development in the area of manufacturing operations;
– restrict use only to manufacturing industries.

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ENTERPRISE-CONTROL SYSTEM INTEGRATION –

Part 3: Activity models of manufacturing operations management

1 Scope

This part of IEC 62264 defines activity models of manufacturing operations management that enable enterprise system to control system integration. The activities defined in this document are consistent with the object models definitions given in IEC 62264-1. The modelled activities operate between business planning and logistics functions, defined as the Level 4 functions and the process control functions, defined as the Level 2 functions of IEC 62264-1. The scope of this document is limited to:

– a model of the activities associated with manufacturing operations management, Level 3 functions;

– an identification of some of the data exchanged between Level 3 activities.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 62264-1, *Enterprise-control system integration – Part 1: Models and terminology*

IEC 62264-2, *Enterprise-control system integration – Part 2: Object and attributes for enterprise-control system integration*

ISO 22400-1, *Automation systems and integration – Key performance indicators (KPIs) for manufacturing operations management – Part 1: Overview, concepts and terminology*

ISO 22400-2, *Automation systems and integration – Key performance indicators for manufacturing operations management – Part 2: Definitions and descriptions*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

3.1.1
finite capacity scheduling
scheduling methodology where work is scheduled for production equipment, in such a way that no production equipment capacity requirement exceeds the capacity available to the production equipment

3.1.2
inventory operations management
activities within Level 3 of a manufacturing facility which coordinate, direct, manage and track inventory and material movement within manufacturing operations