International Standard

ISO 16400-3

First edition
2024-03

Automation systems and integration — Equipment behaviour catalogues for virtual production system —

Part 3: Requirements and recommendations for construction of an equipment instance model

Reference number
ISO 16400-3:2024(en)

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Published in Switzerland

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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This document was prepared by Technical Committee ISO/TC 184, *Automation systems and integration*, Subcommittee SC 5, *Interoperability, integration, and architectures for enterprise systems and automation applications*.

A list of all parts in the ISO 16400 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

The ISO 16400 series introduces a concept of an equipment behaviour catalogue (EBC), addresses the requirements of an EBC and provides requirements and recommendations to generate an executable model representing the dynamic behaviour of a nominal or a physical instance of an equipment. An equipment instance model is implemented, such as a software agent. Such an executable model plays a vital role when configuring virtual production systems used for simulation and verification of a future process as well as monitoring of a current process. Therefore, EBCs will constitute an important part in the development of smart manufacturing.

An EBC enables an efficient and standardized way for a provider of equipment to communicate its dynamic behaviour.

The ISO 16400 series consists of the following parts, under the general title *"Automation systems and integration — Equipment behaviour catalogues for virtual production system"*:

Part 1: *Overview*

Part 2: *Formal description of a catalogue template*

Part 3 (this document): *Requirements and recommendations for construction of an equipment instance model*

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Automation systems and integration — Equipment behaviour catalogues for virtual production system —

Part 3:
Requirements and recommendations for construction of an equipment instance model

1 Scope

This document provides requirements and recommendations on how to construct an equipment instance model using an equipment behaviour catalogue (EBC) item.

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.

ISO 16400-1:2020, *Automation systems and integration — Equipment behaviour catalogues for virtual production system — Part 1: Overview*

ISO 16400-2:2024, *Automation systems and integration — Equipment behaviour catalogues for virtual production systems — Part 2: Formal description of a catalogue template*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 16400-1 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
construction processor
software tool to construct an equipment instance model from an equipment behaviour catalogue (EBC) item refering to construction requirements

3.2
equipment instance model
executable model corresponding to a specification of an equipment behaviour catalogue (EBC) item

4 Abbreviated terms

XML eXtensible Markup Language

XSL eXtensible Stylesheet Language

XSLT eXtensible Stylesheet Language Transformations

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