
Meritve, krmiljenje in avtomatizacija v industrijskih procesih - Okvir digitalne tovarne - 3. del: Uporaba digitalne tovarne za upravljanje življenjskega cikla proizvodnih sistemov

Industrial-process measurement, control and automation - Digital Factory framework Part 3: Application of Digital Factory for life cycle management of production systems

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SIST EN IEC 62832-3:2021

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ICS:

13.020.60	Življenjski ciklusi izdelkov	Product life-cycles
25.040.40	Merjenje in krmiljenje industrijskih postopkov	Industrial process measurement and control

oSIST prEN IEC 62832-3:2020

en,fr,de



65/775/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER:
IEC 62832-3 ED1

DATE OF CIRCULATION:
2019-11-29

CLOSING DATE FOR VOTING:
2020-02-21

SUPERSEDES DOCUMENTS:
65/749/CD,65/758/CC

IEC TC 65 : INDUSTRIAL-PROCESS MEASUREMENT, CONTROL AND AUTOMATION	
SECRETARIAT: France	SECRETARY: Mr Rudy BELLIARDI
OF INTEREST TO THE FOLLOWING COMMITTEES: SC 3D,SC 65E,SyC SM	PROPOSED HORIZONTAL STANDARD: <input type="checkbox"/> Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: <input type="checkbox"/> EMC <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> QUALITY ASSURANCE <input type="checkbox"/> SAFETY	
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TITLE:

Industrial-process measurement, control and automation - Digital Factory framework Part 3: Application of Digital Factory for life cycle management of production systems

PROPOSED STABILITY DATE: 2024

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**INDUSTRIAL-PROCESS MEASUREMENT, CONTROL AND AUTOMATION –
Digital Factory framework****Part 3: Application of Digital Factory for life cycle management of
production systems**

FOREWORD

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International Standard IEC 62832-3 has been prepared by IEC technical committee 65: Industrial-process measurement, control and automation.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
XX/XX/FDIS	XX/XX/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

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

A list of all parts of the IEC 62832 series, published under the general title, *Industrial-process measurement, control and automation – Digital Factory framework*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site 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.

The National Committees are requested to note that for this publication the stability date is 2024

THIS TEXT IS INCLUDED FOR THE INFORMATION OF THE NATIONAL COMMITTEES AND WILL BE DELETED AT THE PUBLICATION STAGE.

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.

INTRODUCTION

IEC 62832 provides a framework used for establishing and maintaining the digital representations of production systems, including the representation of the elements of the production systems and of the relationships between these elements. The framework is intended also to support the exchange of information about these elements.

The framework aims at reducing the interoperability barriers for exchange of information for the various activities related to production systems. The main advantages of this method are that all information related to a production system is described in a standardized manner, and it can be used and modified through its entire life cycle. The method defined in IEC 62832 is kept as generic as possible in order to enable its use in several industrial sectors.

Manufacturers and suppliers provide information about available PS asset types by using electronic catalogues, which are based on commonly agreed data definitions (for instance IEC CDD, eCI@ss¹ and eOTD²). Such data definitions can be provided by standard organizations (like IEC CDD), by consortia (like eCI@ss e.V.) or by companies (like eOTD dictionaries).

The DF Framework provides a standardized approach, by defining the concepts of Libraries (i.e. SupplierLibraries and DFLibraries) and by defining basic rules for such Libraries.

IEC 62832-1 describes the general principles of the DF reference model together with its most important model elements. IEC 62832-2 specifies detailed requirements for model elements of the DF reference model. This part of IEC 62832 specifies the rules for using the DF framework.

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INDUSTRIAL-PROCESS MEASUREMENT, CONTROL AND AUTOMATION –

Digital Factory framework

Part 3: Application of Digital Factory for life cycle management of production systems

1 Scope

This part of IEC 62832 specifies rules of the Digital Factory framework for managing information of a production system throughout its life cycle. It also defines how information will be added, deleted or changed in the DigitalFactory by the various activities during the life cycle of the production system.

These rules include:

- rules to represent a production system with a DigitalFactory;
- rules to represent a PS asset or a role with a DFasset;
- rules to represent a relationship between PS assets with a DFassetLink;
- rules to represent a relationship between roles with a DFassetLink;
- rules to represent the hierarchy of PS assets in a production system;
- rules to check the compatibility between associated PS assets.

NOTE 1 "PS" and "DF" are used in the IEC 62832 series as qualifiers, they are part of the concept names. See IEC 62832-1:—, Clause 3.

NOTE 2 Common rules are the base for the exchange of data between and within enterprises, between engineering tools, and between departments.

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 62832-2:—³, *Industrial-process measurement, control and automation – Digital factory framework – Part 2: Model elements*

ISO/IEC 6523 (all parts), *Information technology – Structure for the identification of organizations and organization parts*

3 Terms, definitions and conventions

3.1 Terms and definitions

For the purposes of this document, the terms and definitions as well as the abbreviated terms given in IEC 62832-1, IEC 62832-2 and the following apply.

³ Under preparation

126 ISO and IEC maintain terminological databases for use in standardization at the following
127 addresses:

- 128 • ISO Online browsing platform: available at <http://www.iso.org/obp>
- 129 • IEC Electropedia: available at <http://www.electropedia.org/>

130 3.2

131 PS asset type

132 set of PS assets with common characteristics and features

133 3.3 Conventions

134 While IEC 62832-1 is using general names for describing the concepts, IEC 62832-2 and
135 IEC 62832-3 define more formal requirements. In order to clearly identify the names of the
136 model elements the documents IEC 62832-2 and IEC 62832-3 use 'PascalCase' for names.

137 A help for matching the names is provided in IEC 62832-2:—, Table B.1.

138 4 General rules

139 4.1 Information about PS asset types

140 The description of a PS asset type is provided in a Library by means of a DFassetClass, which
141 is derived from a DFassetClassDefinition in a ConceptDictionary. This relationship is
142 documented by the "DFassetClassDefinition" reference in the header of the DFassetClass. The
143 product characteristics are described by DataElements and CDEs, which commonly also are
144 based on definitions from the same ConceptDictionary as the DFassetClassDefinition. If the
145 used dictionary does not support description of all relevant product characteristics, additional
146 DataElements and CDEs may be provided based on definitions from a different
147 ConceptDictionary (e.g. from a different consortium or from the vendor) (see for example
148 Figure 1).

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