SVENSK STANDARD SS-EN 62656-3

Fastställd	Utgåva	Sida	Ansvarig kommitté
2015-06-10	1	1 (1+93)	SEK TK 3

Registrering och överföring av standardiserade ontologier för produkter med (hjälp av datasatser i form av) kalkylblad – Del 3: Gränssnitt för den gemensamma informationsmodellen (CIM)

Standardized product ontology register and transfer by spreadsheets – Part 3: Interface for Common Information Model

Som svensk standard gäller europastandarden EN 62656-3:2015. Den svenska standarden innehåller den officiella engelska språkversionen av EN 62656-3:2015.

Nationellt förord

Europastandarden EN 62656-3:2015

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 62656-3, First edition, 2015 - Standardized product ontology register and transfer by spreadsheets - Part 3: Interface for Common Information Model**

utarbetad inom International Electrotechnical Commission, IEC.

ICS 01.040.01; 01.110.00

Denna standard är fastställd av SEK Svensk Elstandard,
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Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a mätning, säkerhet och provning och för utförande, skötsel och dokumentation av elprodukter och elanläggningar.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62656-3

April 2015

ICS 01.040.01; 01.110

English Version

Standardized product ontology register and transfer by spreadsheets - Part 3: Interface for Common Information Model (IEC 62656-3:2015)

Enregistrement d'ontologie de produits normalisés et transfert par tableurs - Partie 3: Interface pour un modèle d'information commun (IEC 62656-3:2015)

Standardisierte Übertragung und Registrierung von Ontologien für Produkte mittels Tabellen - Teil 3: Schnittstellen für das allgemeine Informationsmodell (IEC 62656-3:2015)

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 62656-3:2015 E

SEK Svensk Elstandard

Foreword

The text of document 3D/234/FDIS, future edition 1 of IEC 62656-3, prepared by IEC/SC 3D "Product properties and classes and their identification", of IEC/TC 3 "Information structures, documentation and graphical symbols", was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62656-3.

The following dates were 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)	2015-12-31
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2018-03-31

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 62656-3:2015 was approved by CENELEC as a European Standard without any modification.

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 61360-1	2009	Standard data elements types with associated classification scheme for electric items -- Part 1: Definitions - Principles and methods	EN 61360-1	2010
IEC 61360-4	-	Standard data element types with associated classification scheme for electric components -- Part 4: IEC reference collection of standard data element types and component classes	EN 61360-4	-
-	-		+corrigendum Dec.	-
IEC 61968-1	2003	Application integration at electric utilities - System interfaces for distribution management -- Part 1: Interface architecture and general requirements	EN 61968-1	2004
IEC 61968-11	2010	Application integration at electric utilities - System interfaces for distribution management -- Part 11: Common Information Model (CIM) extensions for distribution	EN 61968-11	2010
IEC 61970-1	2005	Energy management system application program interface (EMS-API) -- Part 1: Guidelines and general requirements	EN 61970-1	2006
IEC 61970-301	2013	Energy management system application program interface (EMS-API) -- Part 301: Common information model (CIM) base	EN 61970-301	2014
IEC 61970-501	2006	Energy management system application program interface (EMS-API) -- Part 501: Common Information Model Resource Description Framework (CIM RDF) schema	EN 61970-501	2006
IEC 62325-301	2014	Framework for energy market communications -- Part 301: Common Information Model (CIM) extensions for markets	EN 62325-301	2014
IEC 62656-1	2014	Standardized product ontology register and transfer by spreadsheets -- Part 1: Logical structure for data parcels	EN 62656-1	2015
ISO 639-1	2002	Codes for the representation of names of languages_- Part_1: Alpha-2 code	-	-

ISO 8601	2004	Data elements and interchange formats - Information interchange - Representation of dates and times	-	-
IEC/TS 61970-2	2004	Energy management system application program interface (EMS-API) -- Part 2: Glossary	CLC/TS 61970-2	2005
ISO/IEC directives Supplement	2013	Procedures specific to IEC	-	-

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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STANDARDIZED PRODUCT ONTOLOGY REGISTER AND TRANSFER BY SPREADSHEETS –

Part 3: Interface for Common Information Model

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 62656-3 has been prepared by subcommittee 3D, Product properties and classes and their identification, of IEC technical committee 3: Information structures, documentation and graphical symbols.

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

FDIS	Report on voting
3D/234/FDIS	3D/245/RVD

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

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

A list of all parts in the IEC 62656 series, published under the general title *Standardized product ontology register and transfer by spreadsheets*, 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 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.

INTRODUCTION

The IEC 62656 series, *Standardized product ontology register and transfer by spreadsheets* is a series of International standards that collectively define the methods for transferring and registering the ontologies of various products and services to and from the ontology registries and applications based on IEC 61360 / ISO13584 common data dictionary model. The IEC common data dictionary, or IEC CDD for short, is one of such registries maintained online as an IEC 61360-4 International Standard based on IEC database procedure stipulated in ISO/IEC Directives Supplement – Procedures specific to IEC. The IEC CDD is a cross-domain data dictionary covering all electro-technical products and services, maintained and updated through a database administered by IEC Central Office.

The common information model originally defined in IEC 61968 and IEC 61970 series of standards, often called by its short name “CIM” provides a standard way to represent all the major objects in an electric utility enterprise typically needed to model the operational aspects of a utility. This model includes public classes and attributes for these objects, as well as the relationships between them. It is known as an information model for energy management system (EMS) of power grids and currently is recognized as a standard ontology model for smart grids. An ontology specification conformant to the CIM data model is available in UML format according to IEC 61970-301, and in RDF format according to IEC 61970-501.

The IEC 62656 series consists of the following parts, under the general title *Standardized product ontology transfer and register by spreadsheets*:

– Part 1: Logical structure for data parcels;

– Part 2: Application guide for use with the IEC common data dictionary (CDD);

– Part 3: Interface for common information model.

STANDARDIZED PRODUCT ONTOLOGY REGISTER AND TRANSFER BY SPREADSHEETS –

Part 3: Interface for Common Information Model

1 Scope

This part of IEC 62656 specifies an interface between IEC 62656 series and meta-model for CIM originally defined in IEC 61968 and IEC 61970 series of standards. The current CIM includes IEC 62325 series and the interface specified in this part of IEC 62656 also applies to the model defined in IEC 62325-301:2014. More specifically, this standard defines a formal mapping between the IEC 62656 and meta-model for CIM in order to import the CIM ontology into the IEC CDD, and to ensure the interoperability of ontologies of two standards, or even among a wider spectrum of standards. For the basis of the mapping from CIM to the data model defined in IEC 62656-1, the UML representation of CIM is referenced.

As a result of the interface specification available from this part of IEC 62656, the smart grid ontology defined in CIM becomes accessible and interoperable in the midst of ontology pieces originating in other ontology standards, encompassing material, environmental, and mechanical, and logistic domains of information. In addition, the specification may also cover the lifecycle of products.

This part of IEC 62656 also defines methods for transforming the IEC CDD content into the format defined in IEC 61968 and IEC 61970 series. However, this standard does not intend any standardization of the elements defined in IEC CDD as part of the CIM ontology, for all the definitions of IEC CDD are already part of an acknowledged horizontal International Standard known as IEC 61360-4-DB. Rather it makes the pieces of information stored in IEC CDD available for further standardization or customization in power electric domains or more specific user communities as a basic resource, in particular for the purpose of extending the CIM series of standards.

The data model of this part is based on IEC 62656-1 which specifies the logical structure for a data parcel, or just simply “parcel,” that is a short name for the medium of registering or transferring of product ontology. Such a parcel may be typically implemented in a leaf of a spreadsheet. The data model built on a set of parcels is called “parcellized ontology model”, which is often abbreviated as “POM” in the remainder of this document.

This part of IEC 62656 specifies:

- the mapping rules and principles for importing CIM UML objects into POM;
- the syntactic and semantic requirements on the parcellized CIM objects;
- the piecewise version control mechanism in POM for the parcellized CIM objects.

The following items are outside the scope of this part of IEC 62656:

- definition of the interface between CIM UML and CIM RDF;
- specification of syntactic and semantic requirements on CIM UML;
- specification of syntactic and semantic requirements on CIM RDF.

2 Normative references

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.

IEC 62656-1:2014, *Standardized product ontology register and transfer by spreadsheets – Part 1: Logical structure for data parcels*

IEC 61360-1:2009, *Standard data elements types with associated classification scheme for electric components – Part 1: Definitions – Principles and methods*

IEC 61360-4, *Standard data element types with associated classification scheme for electric components – Part 4: IEC reference collection of standard data element types, component classes and terms*, available from <http://std.iec.ch/iec61360>

IEC 61968-1:2003, *System interfaces for distribution management – Part 1: Interface architecture and general requirements*

IEC 61968-11:2010, *System interfaces for distribution management – Part 11: Common information model (CIM) extensions for distribution*

IEC 61970-1:2005, *Energy management system application program interface (EMS-API) – Part 1: Guidelines and general requirements*

IEC 61970-2:2004, *Energy management system application program interface (EMS-API) – Part 2: Glossary*

IEC 61970-301:2013, *Energy management system application program interface (EMS-API) – Part 301: Common Information Model(CIM) base*

IEC 61970-501:2006, *Energy management system application program interface(EMS-API) – Part 501: Common Information Model Resource Description Framework(CIM RDF) schema*

IEC 62325-301:2014, *Framework for energy market communications – Part 301: Common information model (CIM) extensions for markets*

ISO 639-1:2002, *Codes for the representation of names of languages – Part 1: Alpha-2 code*

ISO 8601:2004, *Data elements and interchange formats – Information interchange – Representation of dates and times*

ISO/IEC Directives Supplement:2013, *Procedures specific to IEC*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purpose of this document, the terms and definitions given in IEC 61970-2 and IEC 62656-1, as well as the following apply.

3.1.1
attribute

a) attribute defined in IEC 62656-1, equivalent to a meta-property

b) attribute of class used in IEC 61970-301 corresponding to a property in POM

c) attribute of enumeration used in IEC 61970-301 corresponding to a term in POM

Note 1 to entry: In case of b), it is more specifically called as “CIM attribute” or “CIM class attribute” in this standard