IEC 61360-1

Edition 4.0 2017-07

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Standard data element types with associated classification scheme – Part 1: Definitions – Principles and methods

Types normalisés d'éléments de données avec plan de classification – Partie 1: Définitions – Principes et méthodes

IEC 61360-1:2017-07(en-fr)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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STANDARD DATA ELEMENT TYPES WITH ASSOCIATED CLASSIFICATION SCHEME –

Part 1: Definitions – Principles and methods

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 61360-1 has been prepared by subcommittee 3D: Product properties and classes and their identification, of IEC technical committee 3: Information structures and elements, identification and marking principles, documentation and graphical symbols.

This fourth edition cancels and replaces the third edition published in 2009. This edition constitutes a technical revision.

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

– support of advanced constructs such as
  - conditions and constraints,
  - blocks,

  - cardinality,
  - polymorphism,
  - generic and restricted enumerations, and
  - mapping;
- extended list of data types;
- harmonization with IEC 62656-1;
- support of IEC TS 62720 and of coded units;
- harmonization of semantic and administrative data among the various information objects;
- use of UML for data modelling;
- enhanced definitions and descriptions;
- introduction of examples of higher level constructs such as block, cardinality, or polymorphism as guidance for the user of the IEC 61360 series.

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

FDIS	Report on voting
3D/295/FDIS	3D/298/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 in the IEC 61360 series, published under the general title *Standard data element types with associated classification scheme,* can be found on the IEC website.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document 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 61360 series as a whole specifies a general purpose dictionary of technical terms covering the field of electrotechnology, electronics and related domains. The dictionary is specified in a computer-sensible form as a reference dictionary. By using the dictionary , applications can interact and share data in an unambiguous way free from semantic uncertainties.

This document addresses domain engineers and provides a detailed introduction to the structure of the dictionary and its uses from the viewpoint of the dictionary provider as well as from the viewpoint of the user of the dictionary. IEC 61360-2 specifies the detailed dictionary data model and IEC 61360-6 stipulates quality criteria for the content of the dictionary.

Referencing to a common dictionary is advantageous in all cases where product information has to be transferred in an unambiguous way. Use cases include catalogues, ordering processes, product information contained in specifications or contracts.

The International Electrotechnical Commission has set up a technical dictionary for the use in the electrotechnical and electronic domain which is maintained by SC 3D. This dictionary is called IEC Common Data Dictionary (IEC CDD) and can be accessed on the following IEC web page: http://std.iec.ch/iec61360.

Dictionaries should not be confused with catalogues or master data collections; these make use of dictionary objects. In catalogues or master data collections, values are assigned to instances of dictionary objects. Thus they build upon dictionaries. Consequently, dictionaries are normally exchanged in advance of any catalogue or master data.

Closely associated with this document is IEC 61360-2, which contains the information model using the EXPRESS modelling language. In this model, the definition and structure of IEC 61360-1 is formalized and presented in a computer-sensible form.

This document is largely compliant with IEC 61360-2:2012 and ISO 13584-42:2010. However, practical use has shown the necessity to selectively extend the data model. Thus, this fourth edition of IEC 61360-1 extends IEC 61360-2 in both semantics and syntax and introduces additional constructs available from IEC 62656-1 for practical benefits. For example, constructs such as enumerations of real numbers or relation objects do not exist in IEC 61360-2, but are needed in many fields of engineering.

IEC 62656-1 provides interfaces to IEC CDD. Thus, change requests to IEC CDD need to be formed according to the interface specification available from the latter standard.

In some cases it can be difficult to see whether words represent names of information objects or if just everyday items are addressed, e.g. by the term "property".

For this reason, the following typographic rules are used in this document:

– bold, upper case first letter: name of a UML class, e.g. "**Property**";
– bold, lower case first letter: name of a UML attribute or UML association, e.g. "**revision_number**";
– normal font (i.e. not bold), lower case first letter: floating text, e.g. "property".

UML information object names should be treated as constants and should not be translated in other languages.

STANDARD DATA ELEMENT TYPES WITH ASSOCIATED CLASSIFICATION SCHEME –

Part 1: Definitions – Principles and methods

1 Scope

This part of IEC 61360 specifies principles for the definition of the properties and associated attributes and explains the methods for representing verbally defined concepts with appropriate data constructs available from IEC 61360-2. It also specifies principles for establishing a hierarchy of classification from a collection of classes, each of which represents a technical concept in the electrotechnical domain or a domain related to electrotechnology.

The use of this document facilitates the exchange of technical data through a defined structure for the information to be exchanged in a computer-sensible form. Each property to be exchanged has an unambiguously defined meaning and consistent naming, where relevant a defined value list, a prescribed format and defined units of measure for all quantitative values. There is also provision for:

a) control of changes to definitions of the properties through version and revision numbers;

b) inclusion of notes and remarks to clarify and help in the application of the definitions;

c) indication of the sources of definitions and value lists;

d) associated figures and formulae.

NOTE IEC TCs and SCs, or other organizations can take this document as a basis for the development of their own dictionaries.

Out of scope of this document are subjects concerning the information technology infrastructure such as:

– security;

– database locking mechanisms;

– access rights management.

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

IEC TS 62720, *Identification of units of measurement for computer-based processing*

IEC 80000 (all parts), *Quantities and units*

ISO/IEC 646, *Information technology – ISO 7-bit coded character set for information interchange*

ISO/IEC 10646, *Information technology – Universal Multiple-Octet Coded Character set (UCS)*