

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Standard data elements types with associated classification scheme for electric items –

Part 1: Definitions – Principles and methods

Types normalisés d'éléments de données avec plan de classification pour composants électriques –

Partie 1: Définitions – Principes et méthodes



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**STANDARD DATA ELEMENTS TYPES WITH ASSOCIATED
CLASSIFICATION SCHEME FOR ELECTRIC ITEMS –****Part 1: Definitions –
Principles and methods**

FOREWORD

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International Standard IEC 61360-1 has been prepared by subcommittee 3D, Data sets for libraries, of IEC technical committee 3: Information structures, documentation and graphical symbols.

This third edition cancels and replaces the second edition published in 2002, and its Amendment 1(2003). It is a technical revision.

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

- extended administrative data for status and source of content;
- support of multiple language variants for data element types and classes;
- support for multiple alternative units for data element types;
- improved conventions for definition writing based on ISO 704 and ISO/IEC 11179-4;
- enhanced definitions and descriptions.

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

FDIS	Report on voting
3D/169/FDIS	3D/172/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 of the IEC 61360 series can be found, under the general title *Standard data elements types with associated classification scheme for electric items*, 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 publication will remain unchanged until the maintenance result 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- withdrawn,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.

<https://standards.iteh.ai/catalog/standards/sist/6e272e8-5472-4164-8efb-b29130c3cc45/iec-61360-1-2009>

STANDARD DATA ELEMENTS TYPES WITH ASSOCIATED CLASSIFICATION SCHEME FOR ELECTRIC ITEMS –

Part 1: Definitions – Principles and methods

1 General

1.1 Scope

This part of IEC 61360 provides a firm basis for the clear and unambiguous definition of characteristic properties (data element types) of all elements of electrotechnical systems from basic components to sub-assemblies and full systems. Although originally conceived in the context of providing a basis for the exchange of information on electric/electronic components, the principles and methods of this standard may be used in areas outside the original conception such as assemblies of components and electrotechnical systems and subsystems.

In addition, this standard provides for establishing a classification hierarchy and the allocation of applicable and relevant properties to each of the classes so established in order to describe fully the characteristics of objects belonging to that class.

Use of this standard facilitates the exchange of data describing electrotechnical systems through a defined structure for the information to be exchanged in a computer-sensible form. Each property to be exchanged will have 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:

- control of changes to definitions of the properties through version and revision numbers;
- inclusion of notes and remarks to clarify and help in the application of the definitions;
- indication of the sources of definitions and value lists;
- associated figures and formulae.

NOTE IEC TCs and SCs, or other organizations may take this part of IEC 61360 as a basis for the development of their own dictionaries.

1.2 ISO/IEC EXPRESS information model

Closely associated with this part of IEC 61360 is IEC 61360-2. This part 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. Use of this information model allows dictionary information to be exchanged between different systems using the STEP physical file format as defined in ISO 10303-21.

This information model has also been accepted as the common information model with ISO/TC184/SC4 and is reproduced as ISO 13584-42. Use may be made of other standards in the ISO 13584 series of standards for extension of the concepts defined in this standard. In particular ISO 13584-24 contains provisions which allow:

- extensions of the class structure to include feature and functional model classes;
- tabulation of properties;
- functional relationships among properties;
- references to graphical information;
- structuring of parts libraries.

NOTE This part of IEC 61360 is intended to be compliant with the upcoming Edition 3 of IEC 61360-2 and Edition 2 of ISO 13584-42.

1.3 Normative references

The following referenced documents are indispensable for the application 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 60027 (all parts), *Letter symbols to be used in electrical technology*

IEC 61360-2 :2002, *Standard data element types with associated classification scheme for electric components – Part 2: EXPRESS dictionary schema* (available in English only)

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* (available in English only)¹

IEC 60747(all parts), *Semiconductor devices*

IEC 60748(all parts), *Semiconductor devices – Integrated circuits*

ISO 31(all parts), *Quantities and units*

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

ISO 704, *Terminology work – Principles and methods*

ISO 843:1997, *Information and documentation – Conversion of Greek characters into Latin characters*

ISO 2382 (all parts), *Information processing systems – Vocabulary*

ISO 3166 (all parts), *Codes for the representation of names of countries and their subdivisions*

ISO 6093, *Information processing – Representation of numerical values in character strings for information interchange*

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

ISO 9735, *Electronic data interchange for administration, commerce and transport (EDIFACT) – Application level syntax rules²*

ISO 10303-21, *Industrial automation systems and integration – Product data representation and exchange – Part 21: Implementation methods: Clear text encoding of the exchange structure*

ISO 13584-24:2003, *Industrial automation systems and integration – Parts library – Part 24: Logical resource: Logical model of supplier library*

¹ This publication was withdrawn and replaced by IEC CDD (see bibliography)..

² This normative reference is based on the Trade Data Elements Directory (TDED) of the United Nations Economic Commission for Europe (UNECE), Trade Facilitation.

ISO 13584-26, *Industrial automation systems and integration – Parts library – Part 26: Logical resource: Information supplier identification*

ISO 13584-42, *Industrial automation systems and integration – Parts library – Part 42: Description methodology: Methodology for structuring part families*

ISO 13731, *Ergonomics of the thermal environment – Vocabulary and symbols*

ISO/IEC 6523-1, *Information technology – Structure for the identification of organizations and organization parts – Part 1: Identification of organization identification schemes*

ISO/IEC 10646-1, *Information technology – Universal Multiple-Octet Coded Character set (UCS) – Part 1: Architecture and Basic Multilingual Plane*

ISO/IEC 11179-3, *Information technology – Metadata registries (MDR) – Part 3: Registry metamodel and basic attributes*

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

NOTE The definitions are presented in a logical order, an alphabetic list is included.

Alphabetic list of the terms

applicable data element type	2.23
attribute	2.12
classification	2.9
classifying data element type	2.8
component	2.17
computer-sensible information	2.22
condition data element type	2.7
data element type	2.3
data element type class	2.4
drawing	2.28
electric component	2.18
electric item	2.14
entity	2.1
feature	2.20
geometry	2.21
item	2.13
item class	2.15
limiting value	2.33
material	2.19
maximum value (max)	2.30
minimum value (min)	2.29
nominal value (nom)	2.32
non-quantitative data element type	2.6
outline style	2.26

package	2.27
product	2.16
quantitative data element type	2.5
relation	2.2
shape	2.25
subclass	2.10
superclass	2.11
typical value (typ)	2.31
visible data element type	2.24

2.1

entity

any concrete or abstract object of interest, including relations among things

2.2

relation

observed connection between *entities*

2.3

data element type

DET

unit of data for which the identification, description and value representation have been specified

2.4

data element type class

class of data element types with same type of representation, or description or value representation

2.5

quantitative data element type

data element type with a numerical value representing a measurable physical quantity, a quantity of information or a count of objects

2.6

non-quantitative data element type

data element type which identifies or describes an object by means of codes, abbreviations, names, references or descriptions

2.7

condition data element type

data element type whose value affects the value of another data element type

NOTE 1 A condition data element type has only a meaning when it is used in combination with another data element type.

NOTE 2 A condition data element type forms not a part of the classification tree and can be used on every level of the classification.

2.8

classifying data element type

data element type applicable for a particular item class, addressing a single elementary attribute of that item and having a homogeneous complementary value list, whose values define the item subclasses

2.9**classification**

systematic division of a set of items into subsets according to their difference in some predetermined characteristics

2.10**subclass**

class that is one step below another class in a characterization hierarchy or in a classification hierarchy

[ISO 13584-42]

2.11**superclass**

class that is one step above another class in a characterization hierarchy or in a classification hierarchy

NOTE All parts that belong to a class also belong to its superclass.

[ISO 13584-42]

2.12**attribute**

any one of the properties to describe an entity, possibly involving one or more other entities

2.13**item**

a thing whose description can be captured by a class structure and a set of data element types

NOTE Included are basic components to sub-assemblies and full systems.

2.14**electric item**

electric component, device or system

2.15**item class**

set of items of which each item can be described by the same group of data element types

2.16**product**

result of labour or of a natural or industrial process

2.17**component**

industrial product which serves a specific function or functions, which is not decomposable or physically divisible and which is intended for use in a higher order assembled product

2.18**electric component**

component with conductive terminals through which voltages or currents may be applied or delivered

NOTE Electric components and electric transducers are included in this definition.

2.19**material**

basic matter (as metal, wood, plastic, fibre) from which the greater part of something physical is made

2.20

feature

aspect of an item that can be captured by a class structure and set of data element types and that cannot exist independently of the item

[ISO 13584-24, 3.41, modified]

2.21

geometry

surface shape (as of a mechanical part or a crystal)

2.22

computer-sensible information

information which can be exchanged and manipulated with the interactive use of computer systems, programs and procedures

2.23

applicable data element type

data element type defined for an item class and which applies to all items belonging to that class

2.24

visible data element type

data element type that has a definition meaningful in the scope of a given item class, but that may or may not apply to the various products belonging to this class

NOTE Within IEC 61360-4, all data element types are defined as visible at the level of the root class, that is the superclass of the component class, material class, geometry class and feature class.

2.25

shape

external form of a component package as given by the set of data element types

2.26

outline style

physical information enclosing the apparently plane figure presented by any object to sight, contour and/or external boundary of a component

2.27

package

term applied to an electric or electromechanical component which covers the physical outline of the component, including terminals and any protective material or casing

2.28

drawing

illustration of the meaning of a group of data element types describing the geometrical characteristics of an item

2.29

minimum value

min

lowest value specified of a quantity, established for a specified set of operating conditions at which a component, device or equipment can operate and performs according to specified requirements

2.30
maximum value
max

highest value specified of a quantity, established for a specified set of operating conditions at which a component, device or equipment can operate and performs according to specified requirements

2.31
typical value
typ

commonly encountered value of a quantity used for specification purposes, established for a specified set of operating conditions of a component, device, equipment, or system

2.32
nominal value
nom

value of a quantity used to designate and identify a component, device, equipment, or system

NOTE The nominal value is generally a rounded value.

[IEV 151-16-09]

2.33
limiting value

greatest or smallest admissible value of a quantity in a specification of a component, device, equipment, or system beyond which it will be damaged resulting in permanent unwanted changes of functional or physical characteristics influencing its performance

[IEV 151-16-10, modified]

3 Dictionary identification

The IEC Component Data Dictionary (IEC CDD) contains a collection of classes and data element types. All individual dictionary items are uniquely identified which includes the version as a record of significant changes to a dictionary item. The identification of a dictionary item is therefore not dependent on a publication of the dictionary at a particular point in time.

For use of the dictionary contents in communication between business parties, it can be helpful to identify the complete set of dictionary items as a reference and to avoid having to specify each individual dictionary item in the agreement for what items are communicated. For this reason the IEC CDD will be identified by the following attributes:

3.1 Dictionary supplier

Attribute name:	dictionary supplier
Attribute definition:	identification of any organization authorized to register dictionary items
Comments:	the identifier is specified in ISO 13584-26. The source identification for the IEC 61360 reference dictionary is: "0112/2///61360_4" the source identification of the standard does not include an edition number contrary to what ISO 13584-26 has defined
Obligation:	mandatory
Character type of values:	fixed code as defined above. The slash "/" separator is used in a physical file in accordance with ISO 10303-21. In other mediums such as XML other separators may be used