

Edition 1.0 2012-08

# TECHNICAL SPECIFICATION

Preparation and processing of source definitions for data element types – Guidelines for product committees

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# **TECHNICAL SPECIFICATION**

Preparation and processing of source definitions for data element types – Guidelines for product committees

**Guidelines for product committees** 

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**INTERNATIONAL ELECTROTECHNICAL** COMMISSION

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#### INTERNATIONAL ELECTROTECHNICAL COMMISSION

## PREPARATION AND PROCESSING OF SOURCE DEFINITIONS FOR DATA ELEMENT TYPES – GUIDELINES FOR PRODUCT COMMITTEES

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- the subject is still under technical development or where, for any other reason, there is the future but no immediate possibility of an agreement on an International Standard.

Technical specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

IEC 62768, which is a technical specification, has been prepared by IEC technical committee 3: Information structures, documentation and graphical symbols.

The text of this technical specification is based on the following documents:

Enquiry draft	Report on voting
3/1079A/DTS	3/1101/RVC

Full information on the voting for the approval of this technical specification 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.

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 1.0562168:72 related to the specific publication. At this date, the publication will be

- transformed into an International standard,
- reconfirmed.
- withdrawn,
- replaced by a revised edition, or
- amended.

at a lat portion of the state o A bilingual version of this publication may be issued at a laterdate.

## PREPARATION AND PROCESSING OF SOURCE DEFINITIONS FOR DATA ELEMENT TYPES – GUIDELINES FOR PRODUCT COMMITTEES

#### 1 Scope

This Technical Specification specifies how product committees, including committees producing horizontal standards, intending to submit Data Element Types (DETs) for inclusion in the IEC Component Data Dictionary (IEC CDD), should specify the source descriptions in their own standard; and specify the information to be sent to SC3D for inclusion in IEC CDD.

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

IEC 61360-2, Standard data elements types with associated classification scheme for electric components – Part 2: EXPRESS Dictionary schema

IEC 61360-DB, IEC Component Data Dictionary (IEC CDD, IEC 61360-4)

IEC 62656-1, Standardized product ontology register and transfer by spreadsheets – Part 1: Logical structure for data parcels <sup>1</sup> L

IEC/TS 62656-2, Standardized product ontology register and transfer by spreadsheets – Part 2: Implementation guide for parcel interchange with IEC CDD<sup>2</sup>

#### 3 Terms and definitions

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

NOTE Words shown in italics in a definition in Clause 3 are defined as terms elsewhere in the clause.

# 3.1 attribute

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

[SOURCE: IEC 61360-1:2009, 2.12]

Note 1 to entry: In this context "entity" refers to a "data element type", and "property" refers to a parameter suitable for the description of this.

<sup>1</sup> To be published.

<sup>2</sup> To be published.

#### 3.2

#### (characteristic) property

defined parameter suitable for the description and differentiation of objects

Note 1 to entry: The term (characteristic) property (of an object) is **not** identical with the term data element type used in IEC 61360. A data element type is a unit of data for which the identification, description and value representation have been specified **in the context of a dictionary**, while the term (characteristic) property is used for an **occurrence** of such a data element type **in the context of a specification of an object**. This distinction makes it possible to qualify a property in an object specification and still refer to the same data element type definition in the dictionary.

[SOURCE: IEC/PAS 62569-1:2009, 3.1.6]

#### 3.3

#### data element type

#### DET

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

[SOURCE: IEC 61360-1:2009, 2.3]

#### 3.4

#### horizontal standard

standard on fundamental principles, concepts, terminology or technical characteristics, relevant to a number of technical committees and of crucial importance to ensure the coherence of the corpus of standardization documents

[SOURCE: IEC Guide 108:2006, 3.1]

#### 3.5

#### product standard

standard that specifies requirements to be fulfilled by a product or group of products to establish its fitness for purpose

Note 1 to entry: A product standard may include, in addition to the fitness-for-purpose requirements, directly or by reference, aspects such as terminology sampling, testing, packaging and labelling and, sometimes, processing requirements.

Note 2 to entry: A product standard can either be complete or not, according to whether it specifies all or only a part of the necessary requirements. In this respect, one may differentiate between standards such as dimensional, material and technical delivery standards.

[SOURCE: ISO/IEC Guide 2:2004, 2.4]

#### 4 General

#### 4.1 Background information

General guidelines regarding the specification of product properties are provided in ISO/IEC Guide 77, all parts.

Information on the description of Data Element Types (DETs) is provided in the horizontal standard IEC 61360-1.

A dictionary information model using EXPRESS modeling language is provided in the horizontal standard IEC 61360-2.

Information on the application of DETs for specification of characteristic properties of products is provided in IEC 62569, all parts.

#### 4.2 Cooperation and responsibilities

Data Element Types (DETs) are used for computer interpretable specification of characteristic properties of products, systems and components. "Computer interpretable" indicates that formal requirements have to be fulfilled, from information technological view, with regard to way the standardization of DETs is carried out.

The IEC Component Data Dictionary (IEC CDD, IEC 61360-4) is the IEC repository for DETs. It is managed by SC3D *Product properties and classes and their identification*, of TC3 *Information structures, documentation and graphical symbols*. SC3D is responsible for carrying out the last part of the standardization procedure that ultimately leads to the inclusion of a DET in this repository. This includes all required formal checks of the DET, mentioned above.

The beginning of the standardization process is the task of those committees that wish to have their DETs included in the IEC CDD.

Experts involved in product committees have knowledge of the actual product properties (but often limited interest in information technology); experts involved in SC3D have necessary knowledge of how to handle the information (but cannot possibly have complete knowledge of all product areas).

The standardization of DETs is therefore by necessity a cooperative task between the SC3D and the actual committee. The committee is responsible for the supply of adequate source descriptions for the DETs for further processing by SC3D in many cases is it wise to set up a specific MT to support the cooperation.

The committee supplying information for publication in the IEC CDD shall be aware of the following statement:

By submitting content for storage discussion, or publication in an IEC publication in database form, the proposer declares that the submitted content may be exploited according to the rules stated in the relevant license statement. No economic rights (such as copyright or intellectual property rights) [1] shall apply that restrict the above use of the submitted content.

[1] Guide on Surveying the Economic Contribution of the Copyright-Based Industries, WORLD INTELLECTUAL PROPERTY ORGANIZATION, Geneva 2003

NOTE The applicable ucense Statement is found in: End User License Agreement for IEC Component Data Dictionary (CDD).

For the use of the information provided in a dictionary the following statement (appearing in the database) applies:

All publications from IEC, independent of its representation or presentation form, are generally intended for public use. Therefore the published content may be exploited according to the rules stated in the relevant license statement.

Depending on a specific standard, there might be constraints for its full industrial use influenced by associated patents. IEC runs a list on its homepage listing all those published standards being partially affected by known patents, providing information on how to proceed in such case.

IEC is responsible of the English and French variants of a dictionary. Further language variants included in a database are under the responsibility of the relevant National Committee. In some cases the French language variant may not be implemented by decision of the French National Committee.

While all reasonable care is taken in the preparation and review of IEC International Standards and other deliverables, IEC does not warrant that the content is suitable or complete for the intended purpose of the user. To the extent allowed in applicable law, IEC shall in no event be liable for any direct, indirect, punitive, incidental, special, consequential damages, or any damages whatsoever arising out of or connected with the use or misuse of this content.

#### 4.3 Source standard

Every DET is supposed to emanate from a *source standard* that is reliable with regard to the technological knowledge. For products the source standard is the relevant product standard. For DETs of generic nature TC3 with SCs can often provide the source standards. In other cases other horizontal standards may be used.

A source standard should contain unambiguous specifications of the DETs.

In this publication such source descriptions are assumed to be handled in a specific annex "Data Element Type definitions" to a product standard.

The preparation of the source standard (with its annex) is the responsibility of the relevant technical committee.

#### 4.4 Avoiding contradictory standards

A DET is described by a set of attributes.

A complete DET description can, in the IEC CDD, require up to more than 20 attributes. Many of them are of "information technological nature" and of little interest to the originating experts.

Therefore, the source descriptions need to comprise only those attributes that are of interest to these experts. Only those attributes should also be documented in the product standard. This is a way to keep the source relevant to the product committee experts, but also to minimize the risk for contradictions between the product standard and the IEC CDD.

In case of contradictions between the annex of the product standard and the IEC CDD, the latter shall, after completed standardization procedure, be the valid IEC standard.

If changes in the IEC CDD need to be made, such changes need to be introduced on the initiative of the committee responsible for source standard or other interested parties, following the normal database procedure.

#### 5 Template for the Annex "Data Element Type definitions"

#### 5.1 General

Annex A of this publication contains a template for an annex to become part of a product standard.

The annex says:

The publication in hand is the source standard for the data element types defined in A.2. For the purpose of this standard only a subset of the full descriptions are provided, at least containing: identification number, preferred name and definition.

It is recommended to deal also with the attributes data type and values during the development in the product committee. However, in order to avoid discrepancies between the

annex in the product standard and the content of the IEC CDD, it is recommended *not to publish* more than the mentioned minimal information in the annex of the product standard, and leave the remaining attributes for publication in the IEC CDD.

#### 5.2 Forms of presentation

The template allows the use of two methods of presentation of the proposed DETs:

tabular form, see A.2;

list form, see A.3.

Only one form should be chosen. The tabular form is recommended if a large number of DET-definitions are to be dealt with; the list form may be preferable in simple cases.

#### 6 Change request for the IEC CDD, to be sent to SC3D

#### 6.1 General

All source descriptions should be included and further specified in a *change request* submitted to SC3D for standardization.

NOTE The term change request refers to the change of the content of the IEC CDD and is used at the initial introduction of DETs in the database as well as for later possible changes

If changes to the descriptions in A.2 to A.3, or if any other modification to the referenced DET definitions should be required, such issues shall also be subject for such a Change request.

The processing shall follow Annex SL of ISO/IEC Directives, IEC Supplement: Procedures specific to IEC (2012).

NOTE In addition SC3D has prepared document 3D/168/INF IEC 61360 Quality guide, which is obtainable from the SC3D Secretariat.

#### 6.2 Preliminaries

A first draft of the change request (containing at least the *preferred names* of the attributes intended to be included in the annex of the actual publication) shall be sent to the Secretariat of SC3D preferably already when the product standard publication is on the CD stage, in order to allow *registration* of the DETs as "proposed".

The relevant identification numbers for the DETs will be obtained in return.

The identification numbers for the DETs can then be included in the annex of the actual publication so that links to the IEC CDD can be established.

NOTE The standardization procedure for the DETs can then be run in parallel to standardization of the actual publication. Via the link the actual state of the standardization can be studied at any time during the following standardization process for the publication. As the standardization of the DETs, following the database procedure, is intended to run faster than the normal standardization procedure for the publication, the DETs are likely to be formally standardized when the actual product publication reaches the FDIS or at least the IS state.

#### 6.3 Form of presentation

The change request shall be prepared as a set of spread sheets following the guidelines provided by SC3D. Please refer to IEC 62656-1 and IEC/TS 62656-2.

NOTE 1 A third party tool, called ParcelMaker™ 3, for the preparation of these spreadsheets is available without charge for dictionary standardization purposes. For more information, please contact the Chairman or Secretary of

An elaborated change request, including all attributes formally required for the evaluation of the DETs, shall be sent to the Secretariat of SC3D as soon as possible after circulation of the CD of the actual publication, and in any case not later than the circulation of the CDV.

NOTE 2 In some cases the change request includes also the definition of new component classes.

NOTE 3 The attributes are specified in IEC 61360-1. At the time of preparation of this publication the following attributes are listed. For further information, please refer to the standard. The full PDF of IECTS 62 T68:2012

- Identifying attributes
  - Code (identification number)
  - Version number
  - Revision number
  - Preferred name
  - Synonymous name
  - Visible from class
  - Short name
  - Preferred letter symbol
  - Synonymous letter symbol
- Semantic attributes
  - Definition
  - Note
  - Remark
  - Formula
  - Figure
  - Source document of the data element type definition
- Value attributes
  - Data type
  - Value format
  - Data type dependencies
  - Unit of measure
  - Value list
  - Referenced class identifier
- Relationship attributes
  - Condition data element type

Annex B of this publication shows an example prepared in accordance with IEC 62656-1 and IEC/TS 62656-2.

#### 6.4 **Maintenance Team**

If required, a Maintenance Team (MT) may be set up to assist the secretaries (of the product committee and SC3D respectively) in the preparation activities for the change request. When established, the MT should have a one to one relation to the actual product standard and consists of members with expertise in the actual technological field.

ParcelMaker ™ is a trade mark of Toshiba Corporation. For exact conditions of use of the tool, please contact the Secretariat of SC3D.

#### 6.5 Validation and publication of the DETs

After formal evaluation of the change request by the Validation Team for IEC 61360, the standardization procedure of the DETs will normally follow the *normal database procedure*, with validation and publication in the IEC CDD. Please refer to *Annex SL of ISO/IEC Directives, IEC Supplement: Procedures specific to IEC (2012)*.

#### 6.6 Change management

Jould of the contraction of the If, during the standardization procedure of the publication with its annex, there are comments that will require changes of the already submitted DETs, then these changes should be the subject of separate change requests. Depending on how far the processing of the original change request has proceeded, such changes may or may not be included in the validation of the original change request.

# Annex A (informative)

## Data element type definitions (template)

#### A.1 General

Data Element Types (DETs) (sometimes also called "properties") are used to unambiguously express characteristic properties for objects, especially when information is communicated between computers.

Once a DET is hosted in a dictionary, this can serve as an unambiguous common reference for the communication. This is vital for the support of electronic business.

The standardized full descriptions of DETs (providing all attributes in accordance with IEC 61360-1) are contained in the IEC Component Data Dictionary (IEC CDD, IEC 61360-4), available at http://std.iec.ch/iec61360.

The publication in hand is the source standard for the data element types defined in A.2. For the purpose of this standard only a subset of the full descriptions are provided, at least containing: identification number, preferred name and definition.

NOTE 1 The identification number is listed in the IEC CDD as code under which it is stored in the dictionary.

NOTE 2 The attributes preferred name and definition are provided in the English language only, as the English language is the reference language of the IEC CDD. The IEC CDD allows adding national language variants to the dictionary under the control of the relevant National Committee.

NOTE 3 The DETs defined in this publication have been forwarded for standardization and inclusion in the IEC CDD following the procedure defined in *Annex of ISO/IEC Directives, IEC Supplement: Procedures specific to IEC (2012)*. The intent of this procedure is, in this case, to make the DETs available in the IEC CDD at the time of publication of the present publication.

Other DETs referenced in this publication are listed in A.4. For these DETs the *identification* number with link is provided, if the DET is included in the IEC CDD at the time of preparation of this annex. These DETs are listed under their preferred name, with synonyms or short names indicated, if used in this publication.

#### A.2 Source definition of DETs in this publication (tabular form)

Identification number (DET Id)	Preferred name	Definition
<pre><li><li>k to the DET&gt; (mandatory)</li></li></pre>	(mandatory)	(mandatory) NOTE (optional)

#### Example:

Identification number (DET Id)	Preferred name	Definition
AAE194	synchronous speed	nominal speed of rotation (in r/min) of a synchronous rotational ac motor

#### Source definition of DETs in this publication (list form) **A.3**

#### A.3.1 DET 1

Identification number (DET ID): Ink to the DET> (mandatory)

Preferred name: (mandatory)

**Definition:** (mandatory)

Example:

Synchronous speed

Identification number (DET ID): AAE194

Preferred name: synchronous speed

**Definition:** nominal speed of rotation (in r/min) of a synchronous rotational according

#### Other DETs used with source definitions elsewhere **A.4**

#### A.4.1 DET n

Jos: de de la company de l <Pre><Pre>referred name (synonyms: <>, short name: <>, if used)>: to the DET>

# Annex B (informative)

## Example of source publication annex and change request

#### B.1 General

This example presents a number of specifications of DETs and DET classes, taken from IEC/TS 62771 *Information model covering the contents of IEC 81346-1 and IEC 81346-2, IEC 61175, IEC 61666 and IEC 81714-3*, dealing with identification and classification of objects and terminals. This publication is in this case considered as *source publication*.

B.2 presents the introductory text, the specification of DETs and, in this case also a number of classes of DETs, which were not previously specified.

B.3 presents the corresponding Change request, consisting of four spreadsheets, in accordance with IEC 62656-1 and IEC/TS 62656-2. These spreadsheets are developed in cooperation with SC3D for loading into the IEC CDD. Two of the spreadsheets (PROPERTY and CLASS) correspond directly to the DET and class specifications in the source standard, one (ENUM) specifies an enumeration of values that one of the defined DETs can take in this case, and the fourth (TERMINOLOGY) defines these values. These four spreadsheets are submitted to the Secretariat of SC3D for processing (evaluation, validation and publication) in accordance with the normal database procedure.

# B.2 Annex of source publication (example)

----- Beginning of example ------

Annex A
(normative)
Data Element Type definitions

#### A.1 General

Data Element Types (DETs) (sometimes also called "properties") are used to unambiguously express characteristic properties for objects, especially when information is communicated between computers.

Once a DET is hosted in a dictionary, this can serve as an unambiguous common reference for the communication. This is vital for the support of electronic business.

The standardized full descriptions of DETs (providing all attributes in accordance with IEC 61360-1) are contained in the IEC Component Data Dictionary (IEC CDD, IEC 61360-4), available at http://std.iec.ch/iec61360.

The publication in hand is the source standard for the data element types defined in A.2. For the purpose of this standard only a subset of the full descriptions are provided, at least containing: *identification number*, *preferred name* and *definition*.

NOTE 1 The identification number is listed in the IEC CDD as code under which it is stored in the dictionary.

NOTE 2 The attributes *preferred name* and *definition* are provided in the English language only, as the English language is the reference language of the IEC CDD. The IEC CDD allows adding national language variants to the dictionary under the control of the relevant National Committee.

NOTE 3 The DETs defined in this publication have been forwarded for standardization and inclusion in the IEC CDD following the procedure defined in *Annex SL of ISO/IEC Directives, IEC Supplement: Procedures specific to IEC (2012)*. The intent of this procedure is to make the DETs available in the IEC CDD at the time of publication of the present publication.

Other DETs referenced in this publication are listed in A.3. For these DETs the identification number with link is provided, if the DET is included in the IEC CDD at the time of preparation of this annex. These DETs are listed under their preferred name, with synonyms or short names indicated, if used in this publication.

#### A.2 Source definitions of DETs and classes of DETs in this publication

#### A.2.1 Definitions of DETs

Identification number (DET Id)	Preferred name	Definition
AAF709	class ID	identifier of a class in accordance with the applied classification system
AAF710	classification system	identifier of the documented system in accordance with which classification is made
AAF751	aspect	specified way of viewing an object
AAF754	terminal designation	identifier of a terminal with respect to the object to which it belongs, related to one defined aspect
AAF784	single-level reference designation	reference designation assigned with respect to the object of which the specific object is a direct constituent in one aspect  NOTE A single-level reference designation does not include any reference designations of upper level or lower level objects

## A.2.2 Definitions of classes of DETs

Identification number (Class Id)	Preferred name	Definition
AAA759	object reference designation	concept for the identification of a specific object formed with respect to the system of which the object is a constituent, based on one or more aspects of that system
	COMI	NOTE An object may have more than one object reference designation in accordance with the used aspects.
AAA760	terminal reference designation	concept for the identification of a terminal with respect to the object to which it belongs, related to one defined aspect
IFC/NO		NOTE A terminal may have more than one terminal reference designation in accordance with the used aspects.
AAA761	classification	concept for the association of an object to a class within a documented classification system
		NOTE An object may be multiply classified if different classification systems are applied.

#### A.3 Other DETs in this publication with source definitions elsewhere

Domain number (synonym: domain ID): ADA002

Object number (synonym: object ID): ADA003

NOTE The source references for these DETs can be found via the IEC CDD, in which the source is indicated by means of the administrative attribute *published in* for each DET.

-----End of example -----

#### **B.3** Change request to be submitted to SC3D

#### B.3.1 General

The following pages show an example of a change request prepared in accordance with IEC 62656-1 and IEC 62656-2. The spreadsheets form together an input package or "parcel" to be loaded into the IEC CDD.

The required information, in this case dealing with identification and classification of objects and terminals, is divided into four spreadsheets: CLASS, PROPERTY, VALUELIST and VALUETERMS.

- PROPERTY specifies 5 DETs: AAF784, AAF709, AAF710, AAF751 and AAF754
- CLASS specifies 3 classes: AAA759, AAA760 and AAA761 with associated DETs;
- VALUELIST specifies 1 list of terms: AAF729
- VALUETERMS specifies 4 terms: AAF744, AAF745, AA7546 and AAF747

verview the scree the scree the scree the scree the scree the screen the scre NOTE 1 The spreadsheets are decreased in size in order to provide an overview of it is difficult to read all the details, note that any page from a pdf file can be enlarged as required on the screen. It is also possible to enlarge a page at printing (but it will then be split on more than one sheet).

NOTE 2 The spreadsheets are prepared with the tool ParcelMaker™

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#CLASS_ID:=MDC_C003	: 41:	* * :	11: 11: :	# #DEFAULT_SUPPLIER:=0 112/2///82856_1	#DEFAULT_VERSION:=1	# #PROPERTY_ID	#PROPERTY_NAME.en	* *	* *	11: 11	: #: :	* *	11: 1	t 1t	41:																	

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						MDC_P006_1	DefinitionSource								<b>\</b>	EC. 1.2009	IEC 61668:2009	IEC 81346-2:2009												
						MDC_P007_2.en	Remark.EN									An object may have more than one object reference designation in accordance with the used aspects	terminal mar have ore than one minal reference signation in condance with the	An object may be multiply classified if different classification systems are applied												
						MDC_P007_1.en	Note:EN										7	9/1	1											
						-004_2.MDC_P006.en	Definition.EN									concept for the identification of a specific object formed with respect to the system of which the object is a constituent, based on one or more aspects of that system	concept for the identification of a ferminal with respect to the object to which it belongs, related to one defined aspect.	concept for the association of an object to a class within a documented classification system			•	1	7							
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#CLASS_ID:=MDC_C002	# # #	4: 4:	## ##	# #DEFAULT_SUPPLIER:=01 2/2///52856 1	#DEFAULT_VERSION:=1	#PROPERTY_ID	# #PROPERTY_NAME.en	* 4	b 46 4	: 4: 4	b #	n. n.	16 11	: %	44.															