

# INTERNATIONAL STANDARD

# IEC 61360-2

2002-01

AMENDMENT 1  
2003-12

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Amendment 1

**Standard data element types  
with associated classification scheme  
for electric components –**

**Part 2:  
EXPRESS dictionary schema**

<https://standards.iteh.ai/catalog/standards/iec/15bc178f-5f39-4bda-8e41-ba26e1b0bb81/iec-61360-2-2002-amd1-2003>

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## FOREWORD

This amendment has been prepared by subcommittee 3D: Data sets for libraries, of IEC technical committee 3: Information structures, documentation and graphical symbols.

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

FDIS	Report on voting
3D/117/FDIS	3D/126/RVD

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

The committee has decided that the contents of the base publication and its amendments will remain unchanged until 2005. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

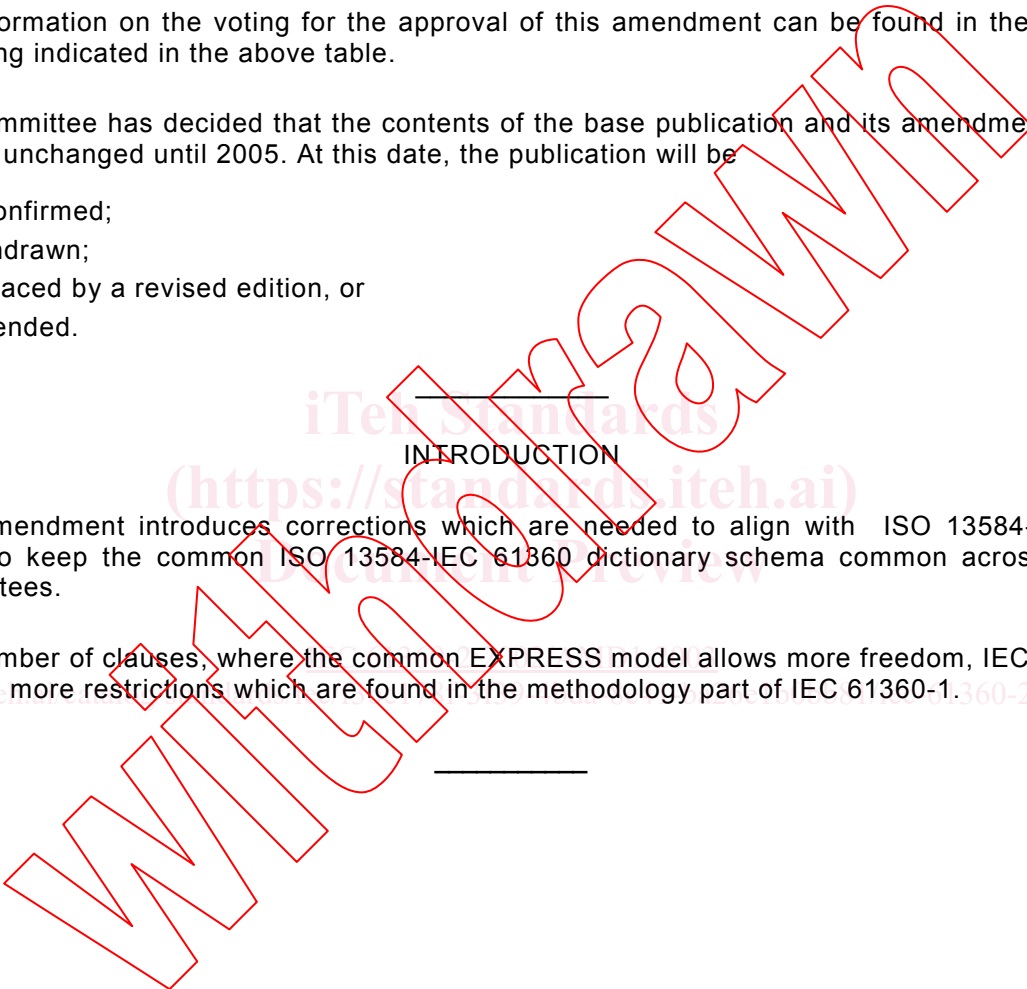
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## INTRODUCTION

This amendment introduces corrections which are needed to align with ISO 13584-42 in order to keep the common ISO 13584-IEC 61360 dictionary schema common across both committees.

In a number of clauses, where the common EXPRESS model allows more freedom, IEC has defined more restrictions which are found in the methodology part of IEC 61360-1.

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 Document Review

Page 5

## INTRODUCTION

*Replace the quotations from IEC 61360-1 and ISO 13584-42 by the following more recent ones:*

“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 subassemblies 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.”

and

“This part of ISO 13584 provides rules and guidelines for library data suppliers to create hierarchies of families of parts according to a common methodology intended to enable multi-supplier consistency. These rules pertain to the following: the method for grouping parts into families of parts to form a hierarchy; the dictionary elements that describe the families and properties of parts.”

Page 6

### 1.1 Scope

*Delete, in the first sentence of the first bullet, the words “but without modelling the definitions of the terms”.*

*Delete the last paragraph.*

Page 9

### 4.2 Compatibility with ISO 13584-42

*Replace, in the second sentence of the second paragraph, “IEC 61360 implementation, whether it conforms to conformance class 1, or to conformance class 2 that includes” by “IEC 61360 implementation that conforms to conformance class 1 that includes”*

Page 10

### 4.4 Main structure of the common dictionary schema

*Replace, on page 11 in the third paragraph, “(see figure 1 to figure 12)” by “(see figure 1 to figure 11)”*

Page 12

## 5.2 Constant definitions

Replace, in the EXPRESS specification, “short\_name\_len: INTEGER:= 15;” by “short\_name\_len: INTEGER:= 30;”

Page 13

### 5.3.2 Three-level architecture of the dictionary data

Replace, in the fourth bullet, the words “property\_DETs” by “**property\_DETs**”.

Page 14

#### 5.3.2.1 basic\_semantic\_unit

Replace, in the first line, “dictionary\_element” by “**dictionary\_element**”.

Page 15

#### 5.3.2.2 dictionary\_element

Add, on page 16, at the end of this subclause, the following note:

NOTE The time\_stamps attribute will be used as a starting-point to encode in the dates entity the property and class attributes "Date of Original Definition", "Date of Current Version" and "Date of Current Revision" (see 5.8.2).

Page 17

### 5.3.4 Identification of dictionary element: three-levels structure

Replace in the last sentence, “entities in 5.3 through 5.7” by “entities in 5.3 through 5.6”.

Page 26

#### 5.6.1 property\_BSU

Replace, on page 27, the formal proposition WR1 by the following new formal proposition WR1:

**WR1:** any class referenced by the describes\_classes attribute of a property\_BSU either is the class referenced by its name\_scope attribute, or it is a subclass of this class.

Page 27

#### 5.6.2 property\_DET

Replace, in the EXPRESS specification, “synonymous\_symbols: SET [0:2] OF mathematical\_string;” by “synonymous\_symbols: SET [0:?] OF mathematical\_string;”.

Page 29

### 5.6.3.2 dependent\_DET<sup>19</sup>

*Replace the existing title of this subclause by the following new title:*

### 5.6.3.2 dependent\_P\_DET<sup>19</sup>

Page 30

### 5.6.3.3 non-dependent\_DET

*Replace the existing title of this subclause by the following new title:*

### 5.6.3.3 non-dependent\_P\_DET”.

Page 32

### 5.7.1.1 data\_type\_BSU

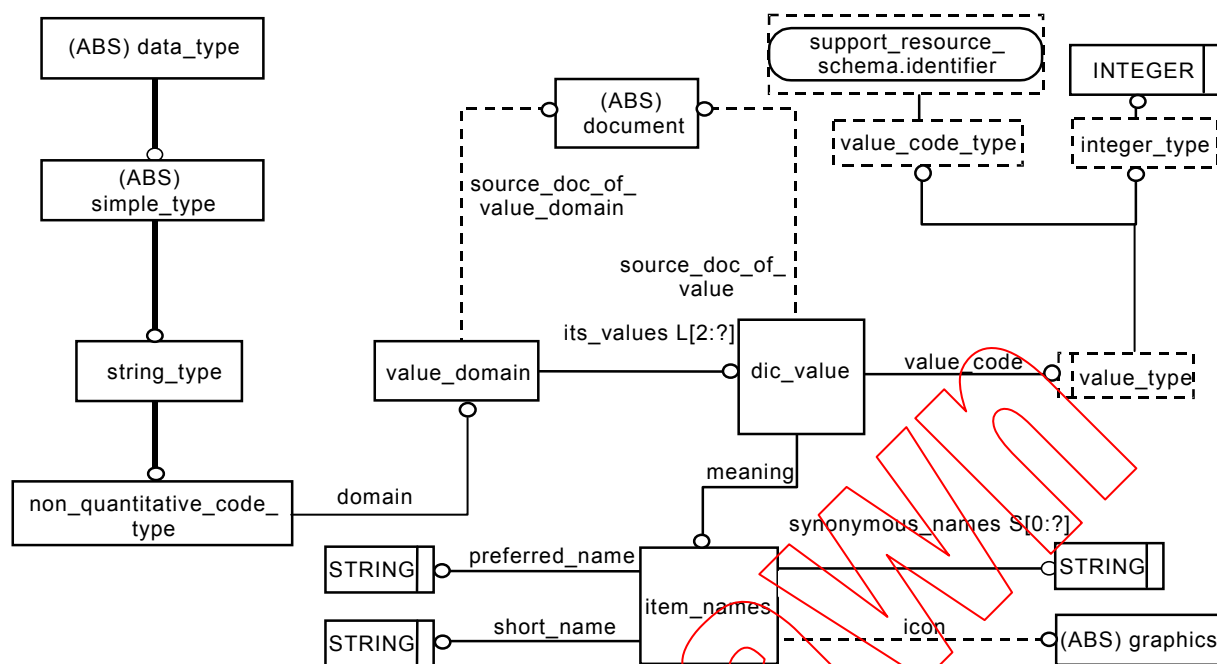
*Replace the fourth attribute definition ('defining class') by the following new definition:*

**defining\_class:** SET OF class FOR defined\_types.

Page 41

### Figure 11 – Overview of non-Quantitative data element types

*Replace figure 11 by the following new figure:*



IEC 2856/03

Figure 11 – Overview of non-Quantitative data element types

Page 42

### 5.7.3.1 value\_domain<sup>25</sup>

Add, to the WHERE rules in the EXPRESS specification, the following:

WR3: EXISTS(languages) OR (QUERY(v <\* its\_values |

EXISTS(v.meaning.languages) = []);

Replace the first attribute definition ('its\_values') by the following new definition:

**its\_values:** LIST [1:?] OF dic\_value;

Add to the list of formal propositions:

**WR3:** if no languages are provided, the value meanings shall not be assigned any language.

Page 53

### 5.8.2.5 item\_names

Replace WR1 and WR3 of the WHERE rules in the express specification by the following:

WR1: NOT (EXISTS(languages)) OR ( ('ISO13584\_IEC61360\_LANGUAGE\_RESOURCE\_SCHEMA' + '.TRANSLATED\_LABEL' IN TYPEOF(preferred\_name) ) AND (languages :=: preferred\_name\translated\_label.languages) AND (NOT (EXISTS(short\_name)) )

```

OR ('ISO13584_IEC61360_LANGUAGE_RESOURCE_SCHEMA'
+ '.TRANSLATED_LABEL' IN TYPEOF(short_name) )
AND (languages :=: short_name\translated_label.languages ) )
AND (QUERY (s <* synonymous_names
| NOT ('ISO13584_IEC61360_DICTIONARY_SCHEMA'
+'.LABEL_WITH_LANGUAGE' IN TYPEOF(s) ) = [ ] ) );

```

WR3: EXISTS(languages) OR (('SUPPORT\_RESOURCE\_SCHEMA.LABEL' IN TYPEOF(preferred\_name)) AND (NOT(EXISTS(short\_name)) OR ('SUPPORT\_RESOURCE\_SCHEMA.LABEL' IN TYPEOF(short\_name))) AND (QUERY(s <\* synonymous\_names | 'ISO13584\_IEC61360\_DICTIONARY\_SCHEMA.LABEL\_WITH\_LANGUAGE' IN TYPEOF(s) = []));

*Replace, in the list of attribute definitions, the third definition ('short\_name') by the following new definition:*

short\_name: OPTIONAL short\_name\_type;

*Replace, in the list of formal propositions, WR3 by the following:*

**WR3:** if no languages are provided, preferred\_name, short\_name and synonymous\_names shall not be translated.

Page 55

### 5.9.1 acyclic\_superclass\_relationship function

*Replace, in the EXPRESS specification, "IF current.definition[1]\class IN visited THEN" by 'IF current.definition[1] IN visited THEN'.*

*Replace*

```

IF EXISTS current.definition[1]\class.its_superclass)
THEN
RETURN (acyclic_superclass_relationship (current.definition[1]\class.its_superclass,
visited + current.definition[1]\class));

```

*by*

```

'IF EXISTS (current.definition[1]\class.its_superclass)
THEN
RETURN (acyclic_superclass_relationship (current.definition[1]\class.its_superclass,
visited + current.definition[1]));'

```

### 5.9.2 at\_most\_two\_synonyms\_per\_language function

*Delete this Subclause and renumber the following Subclauses.*

Page 56

#### 5.9.4 codes\_are\_unique\_function

*Replace*

```

        ELSE
            RETURN(UNKNOWN);
        END_IF;
    END_IF;

```

*by:*

```

        ELSE
            RETURN( ?);
        END_IF;
    END_IF; '

```

Page 61

#### 5.9.11 all\_class\_descriptions\_reachable\_function

*Replace*

```

IF NOT EXISTS(cl)
    THEN
        RETURN(UNKNOWN);
    END_IF;

```

*by:*

```

'IF NOT EXISTS(cl)
    THEN
        RETURN(?);
    END_IF; '

```

Page 65

## 6 IEC 61360 extensions to the common dictionary schema

*Delete this Clause and renumber the following Clauses and Subclauses.*

Page 71

### 8.1.3 Templates for property DET data

*Replace the text of the second, third and fourth paragraphs of this Subclause by the following:*

```

e_i_n=CONDITION_DET(identified_by: property_BSU, time_stamps: OPTIONAL dates,
revision: revision_type, names: item_names, definition: definition_type,
source_doc_of_definition: OPTIONAL document, note: OPTIONAL note_type, remark:
OPTIONAL remark_type, preferred_symbol: OPTIONAL mathematical_string,
synonymous_symbols: SET [ 0 : ? ] OF mathematical_string, figure: OPTIONAL graphics,
det_classification: OPTIONAL DET_classification_type, domain: data_type, formula:
OPTIONAL mathematical_string);

```



e\_i\_n=DEPENDENT\_P\_DET(identified\_by: property\_BSU, time\_stamps: OPTIONAL dates, revision: revision\_type, names: item\_names, definition: definition\_type, source\_doc\_of\_definition: OPTIONAL document, note: OPTIONAL note\_type, remark: OPTIONAL remark\_type, preferred\_symbol: OPTIONAL mathematical\_string, synonymous\_symbols: SET [ 0 : ? ] OF mathematical\_string, figure: OPTIONAL graphics, det\_classification: OPTIONAL DET\_classification\_type, domain: data\_type, formula: OPTIONAL mathematical\_string, depends\_on: SET [ 1 : ? ] OF property\_BSU);

e\_i\_n=NON\_DEPENDENT\_P\_DET(identified\_by: property\_BSU, time\_stamps: OPTIONAL dates, revision: revision\_type, names: item\_names, definition: definition\_type, source\_doc\_of\_definition: OPTIONAL document, note: OPTIONAL note\_type, remark: OPTIONAL remark\_type, preferred\_symbol: OPTIONAL mathematical\_string, synonymous\_symbols: SET [ 0 : ? ] OF mathematical\_string, figure: OPTIONAL graphics, det\_classification: OPTIONAL DET\_classification\_type, domain: data\_type, formula: OPTIONAL mathematical\_string);

Page 74

## Annex A - Example Physical File

Replace the text of this Annex by the following new text.

'ISO-10303-21;

```
HEADER;
FILE_DESCRIPTION('Example physical file', '2;1');
FILE_NAME('example.spf', '2001-01-29', ('IEC SC3D WG2'), (),
'Version 1', "", "");
FILE_SCHEMA('example_schema');
ENDSEC;
DATA;
/*
```

### A.1 Supplier data

```
*/
#1=SUPPLIER_BSU('112/2///61360_4_1', *); /*according to ISO 13584-26*/
#2=SUPPLIER_ELEMENT(#1, #3, '01', #4, #5);
#3=DATES('1994-09-16', '1994-09-16', $);
#4=ORGANIZATION('IEC', 'IEC Maintenance Agency', 'The IEC Maintenance Agency as
described in IEC 61360-3: "Maintenance and Validation Procedures");
#5=ADDRESS('to be determined', $, $, $, $, $, $, $, $, $, $);
#10=SUPPLIER_BSU('112/3///_00', *); /* ISO/IEC ICS */
/*
```

### A.2 Root class data

The AAA000 IEC root class provides a name scope corresponding to the whole future IEC 61360-4 standard. It covers two trees, one for materials, one for components, therefore the class is defined as an item\_class. It is a subtype of ICS root.

```
*/
#90=CLASS_BSU('OO', '001', #10); /* ICS root */
#100=CLASS_BSU('AAA000', '001', #1);
#101=ITEM_CLASS(#100, #3, '01', #102, TEXT('IEC root class that provides a name scope
corresponding to the whole IEC 61360-4 standard. It covers two trees, one for materials, one
for components'), $, $, $, #90, (#110), (), $, (#110), (), $);
#102=ITEM_NAMES(LABEL('IEC root class'), (), LABEL('IEC root'), $, $);
#110=PROPERTY_BSU('AAE000', '001', #100);
#111=NON_DEPENDENT_P_DET(#110, #3, '01', #112, TEXT('the type of tree: material or
component'), $, $, $, $, $, $, $, $, #113, $);
```

```
#112=ITEM_NAMES(LABEL('type of tree'), (), LABEL('tree type'), $, $);
#113=NON_QUANTITATIVE_CODE_TYPE('A..8', #114);
#114=VALUE_DOMAIN((#120, #122), $, $, ());
#120=DIC_VALUE(VALUE_CODE_TYPE('MATERIAL'), #121, $);
#121=ITEM_NAMES(LABEL('material tree'), (), LABEL('mat tree'), $, $);
#122=DIC_VALUE(VALUE_CODE_TYPE('COMPONS'), #123, $);
#123=ITEM_NAMES(LABEL('component tree'), (), LABEL('comp tree'), $, $);
/*
```

### A.3 Material data

```
*/
#200=CLASS_BSU('AAA218', '001', #1);
#201=MATERIAL_CLASS(#200, #3, '01', #202, TEXT('root class of the materials tree'), $, $,
$, #100, (#210, #230), (), $, (#210), (#205), 'MATERIAL');
#202=ITEM_NAMES(LABEL('materials root class'), (), LABEL('materials root'), $, $);
#205=CLASS_VALUE_ASSIGNMENT(#110, 'MATERIAL');
#210=PROPERTY_BSU('AAF311', '005', #100);
#211=NON_DEPENDENT_P_DET(#210, #3, '01', #212, TEXT('code of the type of material'),
$, $, $, $, $, $, 'A57', #213, $);
#212=ITEM_NAMES(LABEL('material type'), (), LABEL('material type'), $, $);
#213=NON_QUANTITATIVE_CODE_TYPE('M..3', #214);
#214=VALUE_DOMAIN((#220, #222, #224, #226), $, $, ());
#220=DIC_VALUE(VALUE_CODE_TYPE('ACO'), #221, $);
#221=ITEM_NAMES(LABEL('acoustical'), (), LABEL('acoustical'), $, $);
#222=DIC_VALUE(VALUE_CODE_TYPE('MG'), #223, $);
#223=ITEM_NAMES(LABEL('magnetic'), (), LABEL('magnetical'), $, $);
#224=DIC_VALUE(VALUE_CODE_TYPE('OP'), #225, $);
#225=ITEM_NAMES(LABEL('optical'), (), LABEL('optical'), $, $);
#226=DIC_VALUE(VALUE_CODE_TYPE('TH'), #227, $);
#227=ITEM_NAMES(LABEL('thermal-electric'), (), LABEL('th-electric'), $, $);
#230=PROPERTY_BSU('AAF286', '005', #100);
#231=NON_DEPENDENT_P_DET(#230, #3, '01', #232, TEXT('The nominal density (in
kg/m**3) of a material'), $, $, $, $, #233, (), $, 'K02', #234, $);
#232=ITEM_NAMES(LABEL('density'), (), LABEL('density'), $, $);
#233=MATHEMATICAL_STRING('$r_d', '&rho;<sub>d</sub>');
#234=REAL_MEASURE_TYPE('NR3..3.3ES2', #235);
#235=DIC_UNIT(#236, $);
#236=DERIVED_UNIT((#237, #239));
#237=DERIVED_UNIT_ELEMENT(#238, 1.0);
#238=SI_UNIT(*, .KILO., .GRAM.);
#239=DERIVED_UNIT_ELEMENT(#240, -3.0);
#240=SI_UNIT(*, $, .METRE.);
/*
```

### A.4 Component data

```
*/
#300=CLASS_BSU('EEE000', '001', #1);
#301=COMPONENT_CLASS(#300, #3, '01', #302, TEXT('root class of the components tree'),
$, $, $, #100, (#310, #330, #350), (), $, (#310), (#305), 'COMPONS');
#302=ITEM_NAMES(LABEL('components root class'), (), LABEL('components root'), $, $);
#305=CLASS_VALUE_ASSIGNMENT(#110, 'COMPONS');
#310=PROPERTY_BSU('AAE001', '005', #100);
#311=NON_DEPENDENT_P_DET(#310, #3, '01', #312, TEXT('Code of the main functional
class to which a component belongs'), $, $, $, $, $, $, 'A52', #313, $);
#312=ITEM_NAMES(LABEL('main class of component'), (), LABEL('main class'), $, $);
#313=NON_QUANTITATIVE_CODE_TYPE('M..3', #314);
#314=VALUE_DOMAIN((#320, #322, #324, #326), $, $, ());
#320=DIC_VALUE(VALUE_CODE_TYPE('EE'), #321, $);
#321=ITEM_NAMES(LABEL('EE (electric / electronic)'), (), LABEL('EE'), $, $);
#322=DIC_VALUE(VALUE_CODE_TYPE('EM'), #323, $);
#323=ITEM_NAMES(LABEL('electromechanical'), (), LABEL('electromech'), $, $);
```