



IEC/TC OR SC: TC 3	SECRETARIAT: Sweden	DATE: 2019-07-12
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Please ensure this form is annexed to the Report to the Standardization Management Board if it has been prepared during a meeting, or sent to the Central Office promptly after its contents have been agreed by the committee.

A. STATE TITLE AND SCOPE OF TC

NEW TITLE

Documentation, graphical symbols and representations of technical information

SCOPE

Standardization in the field of documentation, graphical symbols and representations of technical information, covering

- 1) Rules, principles and methods focusing on machine sensible representation of information. This includes but is not limited to:

- Definition and identification of classes and properties (e.g. sematic data),
- ontologies and data dictionaries (e.g. CDD),
- Information models for structuring of technical data and document management,
- information exchange based on existing communication means,

It includes definition, co-ordination and management of the information required during the whole life cycle of a device, system, or plant, also covering aspects of documentation.

- 2) Rules, principles and methods focusing on human sensible representation of the information. This includes but is not limited to:

- presentation of information in documentation,
- graphical symbols for use in documentation,
- graphical symbols for the human interaction with equipment,

The standards deal with the presentations and graphical symbols as shown in documents or on equipment, independently of their forms of representation, analogue or digital, but may also include requirements for the development of documentation.

- 3) Rules, principles and methods for general and safety related marking, identification and arrangement of information in electrical installations, equipment and man-machine interfaces. This includes but is not limited to:

- the meanings of colours and alternative means, when used for marking and identification,
- the arrangement of indicating devices and actuators,
- coding principles for indicating and actuating devices,
- terminal designation of electrical and electronic components, apparatus and equipment,
- designation of certain designated conductors,
- marking of electrical and electronic equipment with ratings related to supply and to its properties,
- marking of bare and insulated conductors.

B. MANAGEMENT STRUCTURE OF THE TC

Chair: Mr Eirik Selvik, Norway

Secretary: Ms Martha Levin, Sweden

MAINTENANCE TEAMS

MT 60073	Maintenance of IEC 60073
MT 60152	Maintenance of IEC 60152
MT 60445	Maintenance of IEC 60445
MT 60447	Maintenance of IEC 60447
MT 60617	Maintenance of IEC 60617DB
MT 60757	Maintenance of IEC 60757
MT 60848	Maintenance of IEC 60848
MT 61082	Maintenance of IEC 61082
MT 61175	Maintenance of IEC 61175
MT 61293	Maintenance of IEC 61293
MT 61355	Maintenance of IEC 61355
MT 61666	Maintenance of IEC 61666
MT 62023	Maintenance of IEC 62023
MT 62027	Maintenance of IEC 62027
MT 62491	Maintenance of IEC 62491
MT 62507	Maintenance of IEC 62507
MT 62744	Maintenance of IEC 62744
MT 81346	Maintenance of the IEC 81346 series
MT 81714	Maintenance of the IEC 81714 series
MT 82045	Maintenance of IEC 82045

JOINT WORKING GROUPS

JWG 16	Maintenance of IEC 82079 series
JWG 17	Documentation of communication in power utility automation

VALIDATION TEAMS

VT 60617	Validation team for IEC 60617 - Graphical symbols for diagrams
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Project Teams

PT 62569	Development of the IEC 62569 series of standards
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Apart from working groups directly connected to **TC3**, there are currently two subcommittees as below:

SC 3C	Graphical symbols for use on equipment
SC 3D	Classes, Properties and Identification of products - Common Data Dictionary (CDD)

SC 3C Scope

Standardization in the field of graphical symbols for the human interaction with equipment regarding methods and rules.

Included:

- Basic design rules for graphical symbols.
- The design of graphical symbols for particular applications.

Graphical symbols for use on equipment are primarily intended to:

- identify the equipment or a part of the equipment (e.g. a control or display);
- indicate a functional state (e.g. on, off, alarm);
- designate connections (e.g. terminals, filling points for materials);
- provide information on packaging (e.g. identification of contents, instructions for handling);
- provide instruction for the operation of the equipment (e.g. limitations of use).

PROJECT TEAMS

PT 45 Survey of graphical symbols for use on equipment used in product committee publications

MAINTENANCE TEAMS

MT 60417 Graphical symbols for use on equipment

MT 62648 Graphical symbols for use on equipment – Guidelines for the inclusion of graphical symbols in IEC publication

MT 62964 Graphical symbols for use on equipment – Graphical symbols for multimedia equipment – Current practice

JOINT WORKING GROUPS

JWG 11 IEC/SC 3C - ISO/TC 145/SC 3

VALIDATION TEAMS

VT 60417 Validation Team for the maintenance of IEC 60417 - Graphical symbols for use on equipment

SC 3D Scope

Standardization for representation of technical information along the life cycle of a product including service, device, system or plant, covering rules, principles and methods associated with the machine sensible representation of the technical information. This refers to:

- definition, structuring and identification of classes and properties
- structural design of product data dictionaries and ontologies
- consistent methodology for the purpose of structuring technical information and its exchange
- support for the design of classes and properties in all domains/industries and their publication in IEC Common Data Dictionary (IEC CDD)
- maintenance and quality control of the IEC Common Data Dictionary (IEC CDD)
- supporting semantic interoperability

SC 3D working groups are:

Working Groups

WG 2 Classification of components and definition of technical data element types

WG 3 Model-extension and interface for IEC CDD

PROJECT TEAMS

PT 62656-5 Interface for activity description

MAINTENANCE TEAMS

MT 61360-1 Maintenance of IEC 61360-1

MT 61360-2 Maintenance of IEC 61360-2

MT 61360-6	Quality guide for IEC 61360 compliant database content
MT 61987	IEC 61987 in IEC CDD
MT 62656-1	Maintenance of IEC 62656-1
MT 62656-2	Maintenance of IEC 62656-2
MT 62656-3	Maintenance of IEC 62656-3
MT 62683	IEC 62683 in IEC CDD
MT 62720	Maintenance of IEC 62720

VALIDATION TEAMS

VT IEC CDD Validation Team for the maintenance of IEC Common Data Dictionary

C. BUSINESS ENVIRONMENT

Provide the rationale for the market relevance of the future standards being produced in the TC.

If readily available, provide an indication of global or regional sales of products or services related to the TC/SC work and state the source of the data.

Specify if standards will be significantly effective for assessing regulatory compliance.

C.1 GENERAL

With regard to the external business environment, the work is greatly influenced by the following factors:

- The documentation related to the whole life cycle is an integral part of any product, system or installation to be delivered
- Documents and information from different sources need to be integrated
- Multi-disciplinary environment, increased need for interoperability and the need of information on demand
- The extensive use of Information technology requires new ways of information management
- The growth in usage of e-commerce with the development of new data dictionaries and increasing requirements for interoperability
- The requirements on globally valid safety rules

C2. Competing standards

In the area of graphical symbols for diagrams: "Old standards" (National standards as well as other practices not being formal standards) never really die since they are preserved in text books used at schools and universities and thus promoted to the next generations. A similar preserving tendency is apparent in CAD-systems delivered with symbol libraries of old origin: users of the systems apply them instead of creating proper ones.

In the area of graphical symbols for use on equipment: Some IEC standards developed by product committees independently of SC 3C, which should be aligned with IEC 60417 DB taking into account IEC 80416-1.

In the area of data element types: Specifications developed by RosettaNet and ecl@ss. The growing activities within international standardization to develop and promote standards not adhering to ISO / IEC guide 77.

C.3 Application standards

Many of the standards produced by the TC 3 and its SCs e.g IEC 60617, IEC 60417, IEC/IEEE 82079 and CDD will be used as part of the assessment for verifying compliance with regulations.

In the area of properties to characterize products IEC 61360 and its corresponding standard ISO 13584 (Industrial automation systems and integration – Parts library (PLIB)) provide requirements for information management i.e. Data Element Types (DETs). The DETs are collected in reference dictionaries such as IEC 61360 DB, which is also known as *IEC Common Data Dictionary (IEC CDD)*.

The SC 3D work is increasingly used in different areas, for example by IEC TC 111 as a basis for material declarations to support the transition to a circular economy.

D. MARKET DEMAND

Provide a list of likely customers of the standards (suppliers, specifiers, testing bodies, regulators, installers, other TC/SC's etc.). Do not specify company names, only categories of customers.

Development of graphical symbols for use on equipment is an ongoing activity reflecting the expressed needs from product committees for such symbols.

For graphical symbols for use in documentation the needs are less expressed as most functions can be expressed by the existing symbols. However, the rapid development of new technology and techniques may change that picture.

Today, the industry is focused on information management, rather than documentation. Documentation is more considered being a way of conveying the information, i.e. the knowledge between parties involved.

TC3 needs therefore to change the focus from documents and documentation to information management.

The evolution from document and documentation management to information management started in the 1980 and it is ongoing. However, this change need to be speeded up in TC 3 activities to meet the stronger markets demand.

The industry is requesting possibilities for a digital representation of products etc. for easy exchange of information between parties and including possibility for online check of compliance. These requests made it necessary to develop the methods for precise definition of concepts and properties being implemented in the IEC CDD. Thus, the demand for providing standardized representation of products is increasing and forcing TC3, SC3D and other TCs to meet these demands. SC 3D is currently cooperating with IEC TC 65, IEC TC 111 and TC 121 on this matter based on a guide (IEC TS 62768) for product committees to specify the source descriptions in their own standards and for submitting the information to IEC CDD.

General rules for marking, identification and actuation principles related to products play an important role, particularly in relation to the human-machine interface. Growing world-wide trade requires that the safety rules for electrical equipment and components are compatible. Many parties involved in the design and manufacturing of electrotechnical products require a consistent set of safety regulations and standards. Users of electrotechnical products require that in addition to the safety aspect the ergonomic aspects of the use of the product are to be considered too. This statement includes a high-level requirement for the development of safety standards.

E. TRENDS IN TECHNOLOGY AND IN THE MARKET

If any, indicate the current or expected trends in the technology or in the market covered by the products of your TC/SC.

There is a rapidly increasing worldwide demand for information management, data communication, exchange of technical product information and interoperability for a variety of business functions.

1. Classification standards should be accessible online
2. Graphical symbols should be accessible and usable online
3. Concepts and properties as defined by IEC CDD should be accessible online

Classification of objects, documentation and information are increasingly used in industry for easy recognition and handling of objects. IEC TC 3 sees increasingly use of IEC 81346 and especially on the letter codes. A proper classification of documents and documentation is sought by the industry for implementation in their document management system, thus forcing IEC TC 3 to revise the IEC 61355 in cooperation with ISO TC 10.

The dynamic use of graphical symbols in different applications requires standards for representation of symbols in dynamic form and even for definition of different states of an object represented by such symbols. Although IEC has developed IEC 62744 on this matter, IEC TC 3 foresee that more work may be necessary.

F. SYSTEMS APPROACH ASPECTS (REFERENCE - AC/33/2013)

The concept of "system approach" is primarily associated to the building of technical equipment, but

can also be applied to more abstract systems.

Therefore, at least two system aspects is considered:

1. The object (product, technical system or installation) to be documented is to be seen as a system which more and more often contains components and equipment (hardware and software) from different technical areas. This requires that the applicable documentation rules are similar or at least harmonized among those areas, in order to obtain a coherent overall documentation.

This calls for co-operation with other bodies, especially in ISO, working with documentation.

2. The documentation standards per se need to form a documentation system, in which the components (the standards) are “modules” that can be applied generally and seamless in the documentation processes. This system includes standards from IEC as well as from ISO.

Another example of this is the common information model between IEC 61360/ISO 13584 ensuring interoperability across a wide range of technical dictionaries.

G. CONFORMITY ASSESSMENT

For the time being, no IEC Conformity Assessment System is being considered in the development of the basic standards for TC 3.

H. HORIZONTAL ISSUES

Many IEC TC 3 standards are classified as “horizontal”, which means that the standard is prepared for the purpose of other TCs as well as for the industry outside of the TC or SC environment.

In addition IEC TC 3 has also developed Basic Safety publications regarding basic and safety principles for human-machine interface, marking and identification.

SC 3C is working in close cooperation with IEC / ISO TCs and SCs for the development of graphical symbols on products.

SC 3D is working in close cooperation with a number of TC s and SCs and also with ISO committees for adding information to the IEC CDD.

Documentation methods have no direct impact on the ecological environment, although there may be some indirect effects: the use of IT-tools and electronic distribution of documents has a potential for decrease of the paper consumption and physical transportation of documents.

Additionally, in the lifecycle of equipment and systems in the fields of electrical, electronic and related technologies, graphical symbols to indicate special treatment and handling play an important role for taking care of the ecological environment.

In the light of the increasing requirements of environmental sustainable production and usage of energy, the concept of Smart grid has become more in focus. This concept includes many different functions and high demands for efficient exchange of information. TC 3 basic standards for modelling and structuring of systems and plants have appeared to give useful support for modern communication concepts, e.g. IEC 61850 series of standards for communication in power systems. Awareness and understanding of the communicated information is essential for the concept. A new edition of the standard for designation of signals was prepared in cooperation with TC 57 for better coordination with this kind of communication standards and for more general use in plant design.

The exchange of information in a Smart grid concept also put high demands on the identification and comprehension of the relevant information. The properties (DET) as defined in IEC CDD intends to be used in any exchange of product data for undoubted understanding both by humans and by computerized systems, receiving and acting on the information.

I. 3-5 YEAR PROJECTED STRATEGIC OBJECTIVES, ACTIONS, TARGET DATES

STRATEGIC OBJECTIVES 3-5 YEARS	ACTIONS TO SUPPORT THE STRATEGIC OBJECTIVES	TARGET DATE(S) TO COMPLETE THE ACTIONS
TC 3		

Further development of the standards for “Generic Specification of Information on Products (GSIP)” in line with the project already started. Part 1 on principles and methods of this series is published as standard in 2017, Part 2 on the structure of the GSIP and part 3 to contain a collection of generally applicable properties. Further the “Interoperability between electromechanical and electrical applications in CAx-systems” (see IEC/PAS 62569) will be included in the series. Part 2 is planned to be completed in 2021 and part 3 is planned to be completed in 2022.	Nomination of a convenor	Part 2 in 2021 and part 3 in 2022
Continuous revise work on IEC 61355 dB and establishing a JWG with ISO/TC 10 in order to converting the IEC 61355 to IEC / ISO 81355 and improve the database	Establishment of JWG with ISO TC 10	2021
Continuous maintenance of IEC 60617 DB initiated by Change Requests in accordance with Annex SL to IEC specific procedures, ISO/IEC Directives		Constantly
Continuous work on “Documentation of communication in power utility automation” as a JWG with TC 57 and make the Technical Report published in early 2020		2020
Revision of IEC 81346-1		2021
Minor revisions of a number of standards		
SC 3C		
Continuous maintenance of IEC 60417 DB initiated by Change Requests in accordance with Annex SL to IEC specific procedures, ISO/IEC Directives		Constantly
Co-ordination and collaboration with other committees which are developing graphical symbols for use on equipment in their standards to avoid inconsistency among IEC deliverables by following the horizontal standard IEC 62648		Constantly
Maintenance of the 80416 series of International Standards in collaboration with ISO TC 145/SC 3 via Joint WG 11		Constantly
Maintenance of on-line guidance for applicants of change requests to IEC 60417 DB in accordance with IEC 80416-1		Constantly
In collaboration with the parent committee and taking into account IEC 62744, to develop families of graphical symbols to be used for “representation of states of objects by graphical symbols		
SC 3D		
Continuous maintenance of IEC CDD initiated by Change Requests in accordance with Annex SL to IEC specific procedures, ISO/IEC Directives		Constantly
Collaboration with other committees which are developing data element types in their standards, initially specifically IEC SC65 E and SC 121A		Constantly

Elaboration of the business model for IEC CDD		Constantly
Implementation of the new version of IEC CDD as a joint effort of IEC CO and IEC SC3D. Improved features are in work for import and export, consistency checking and sophisticated data structures in accordance to the current versions of IEC 61360-2 and ISO 13584-42. The improved database will allow the National Committees to create localized versions of the database content (multilingualism).	The improvement needs IEC IT department support	
Maintenance of IEC 61360 publication series standards in collaboration with ISO TC 184/SC 4 WG 2.		Constantly
Development of IEC 62656 - Standardized product ontology register and transfer by spreadsheets, a standard that enables input, output, and exchange of product classes and properties and their values conformant to IEC 61360, in a tabular form, exemplified by spreadsheets.		Constantly
Note: The progress on the actions should be reported in the RSMB.		