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INTERNATIONAL ELECTROTECHNICAL COMMISSION

Technical Committee No. 3 Documentation and graphical symbols

Liaison report to the Prague meeting from IEC TC 16 *Basic and safety principles for man-machine interface, marking and identification - Coding principles for indication devices and actuators*

1 Meetings

There have been one meetings of IEC TC16, in Oslo October 2001, since the last meeting of TC 3 in Oslo.

2 Publications, documents

IEC 60073, ed. 6 Basic and safety principles for man-machine interface, marking and identification - Coding principles for indication devices and actuators was issued in June 2002

3 Work

TC16 has started the maintenance work on IEC 60445 and IEC 60446. This work has started earlier than intended due to the harmonisation of these publications to the new terminology concerning protective and functional earthing.

4 Miscellaneous

TC16 proposed to TC3 that the terminology concerning symbols related to earthing in IEC60417 and IEC 60617 should be modified. For the related symbols the modifications have taken place. For the symbols in IEC60417 the situation is different. TC16 proposed that the symbol No. 5017 (general earth) in IEC 60417 should be withdrawn from the standard. SC3A distributed a document, and there were a lot of comments especially on the proposed withdrawal. The issue has also been raised in SMB, and TC16 has been asked to provide comments to the proposal of withdrawal of symbol No. 5017 in IEC 60417. The attached document contains the comment from the chairman of TC16, and this document is now going to be circulated to TC16 members and also to other relevant committees.

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Comments on the proposal of withdrawal of symbol 5017 from IEC 60417

1. Earthing symbols

IEC TC16 has proposed to TC3 and SC3C that symbols relating to earthing should be modified and some also possibly withdrawn. The background for the proposal was that the terminology of earthing in the IEV has been modified based on a request from ACOS to harmonize the terminology in the field of earthing.

The original proposal from TC16 was dated in December 1999. The request was put on hold within TC3 until the database version of IEC 60617 was in operation. A reworded proposal was distributed to the validation team for IEC 60617 and also distributed to SC3C.

SC3C has distributed a CD concerning the proposal from TC16, and comments have been received. Based on the comments, it has been indicated that a document should be prepared describing the background for the proposal and the possible effects on symbols to be used in documentation and on symbols for marking on products/equipment

Relevant IEV No.	Graphical Symbol	Proposed Name	Proposed Usage	IEC 60617 No.	IEC 60417 No.
195-02-03		Earth, general symbol; Earthing, general symbol		S00200 (Ed. 2: 02-15-01)	5017 Should be deleted as this symbol should not be used on any product
195-01-13 195-05-15		Functional earthing	Functional earthing conductor; Functional earthing terminal	S00201 (Ed. 2: 02-15-02)	5018
195-01-11 195-02-11		Protective earthing	Protective earthing conductor; Protective earthing terminal	S00202 (Ed. 2: 02-15-03)	5019
195-01-16 195-02-16		Functional equipotential bonding	Functional bonding conductor; Functional bonding terminal	S00203 (Ed. 2: 02-15-04)	5020
195-01-15 195-02-10		Protective equipotential bonding	Protective bonding conductor; Protective bonding terminal	S00204 (Ed. 2: 02-15-05)	5021 (The graphic includes a circle in the triangle)

2. Symbol standards

When discussing symbols within the IEC, the knowledge of the two different IEC symbols standards IEC 60417 and IEC 60617 is important.

IEC 60417 "Graphical symbols for use on equipment" define symbols primarily intended

- to identify the equipment or part of the equipment
- to indicate functional states
- to designate connections
- to provide information of packaging
- to provide instructions for the operation of the equipment.

Symbols of IEC 60417 are **not** primarily intended for:

- safety signs
- public information
- use for drawings
- use in technical documentation of products.

IEC 60617 "Graphical symbols for diagrams" define symbols to be used in diagrams and technical documentation of products.

A symbol may exist in both standards, having the same shape and the same meaning (covering the same concept). This has been the case with the symbols related to earthing including those mentioned in the document 3C/853/CD.

3. TC16 proposal

IEV chapter 195 define two kinds of earthing.

protective earthing (195-01-11)

earthing a point or points in a system or in an installation or in equipment for purposes of electric safety

functional earthing (195-01-13)

earthing a point or points in a system or in an installation or in equipment for purposes other than electrical safety

For TC16 it was clear that it should be possible to distinguish between these two different kinds of terminals on an equipment, either by symbol labelling or by terminal marking. The symbols 5018 and 5019 of IEC 60417 provide the possibilities to make this distinction. There should be not be needs for any other symbols for marking of terminals related to earthing as IEV does not recognize any other earthing purposes.

The intention with the TC16 proposal to withdraw the symbol 5017 from IEC 60417 was to make clear that the symbol 5017 of IEC 60417 should not be used to mark any terminal of any product. The use of this symbol as a terminal marking is unclear and could lead to unpredictable results concerning safety.

TC16 did not propose or intend to withdraw the corresponding symbol from IEC 60617, i.e. the symbol S00200 as this symbol has a much wider use. The IEC 60617 symbol S00200 represents the concept of earth as defined in IEV chapter 195:

reference earth (195-01-01)

part of the Earth considered as conductive, the electric potential of which is conventionally taken as zero, being outside the zone of influence of any earthing arrangement

Note - The concept "Earth" means the planet and all its physical matter

(local) earth (195-01-03)

part of the Earth which is in electric contact with an earth electrode and the electric potential of which is not necessarily equal to zero

No product should be said to be a part of the Earth, and should consequently not be marked with the corresponding symbol.

4. Use of symbol 5017 as a supplementary symbol

It has been mentioned that the symbol 5017 of IEC 60417 could be used to indicate a set of supplementary earthing terminals, terminals that are in addition to the “normal” protective earthing terminal or functional protective terminal. Such a use of the symbol is not recommended as it may lead to confusion. Product marking and product terminal markings should be simple and clear for the user. The terminal marking can, however, not provide the full information about the terminals. Such information must be provided in manuals or other documentation.

5. Withdrawal of symbol 5017 from IEC 60417

TC16 strongly recommends that the symbol 5017 is withdrawn from the IEC 60417, and that the use of this symbol for marking of products or for marking of product terminals is discontinued.

As IEC 60417 is now implemented in a database at CO, the proposal of withdrawal means that the symbol would get the status “withdrawn”, meaning that it is no longer valid for use. It will, however, still be kept in the database for reference purposes.

If the symbol 5017 is not withdrawn, it should be clearly marked that the use of this symbol is restricted to only those cases where the other symbols (i.e. 5018, 5019, 5020 and 5021) do not apply.

TC16 also recommends that the symbol S00200 of IEC 60617 still remain active as a standardised symbol for use in documentation.
