

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



HORIZONTAL STANDARD  
NORME HORIZONTALE

**Graphical symbols for use on equipment – Guidelines for the inclusion of graphical symbols in IEC publications**

**Symboles graphiques utilisables sur le matériel – Lignes directrices pour l'introduction de symboles graphiques dans les publications de la CEI**

IEC 62648:2012

<https://standards.iteh.ai/standards/iec/4bca617-df13-4796-9cd2-46c1956795cf/iec-62648-2012>



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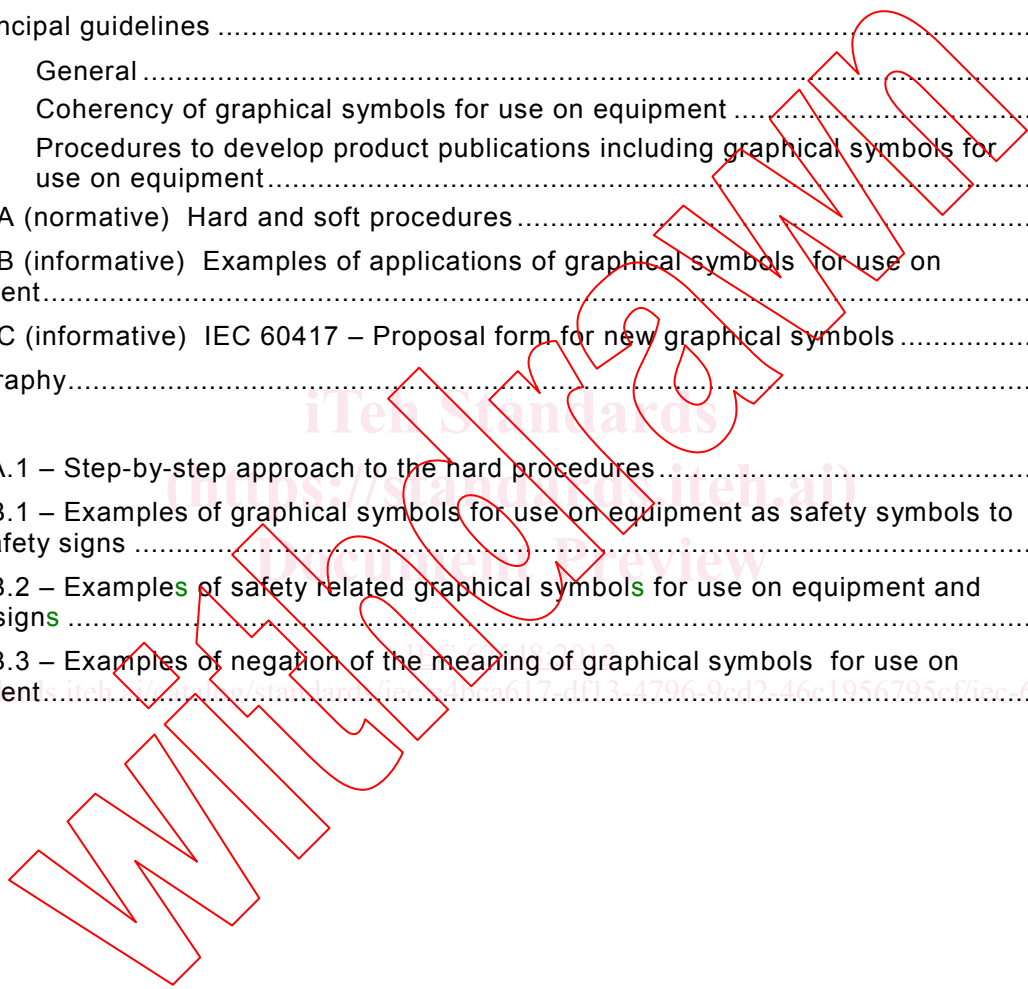
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### GRAPHICAL SYMBOLS FOR USE ON EQUIPMENT – GUIDELINES FOR THE INCLUSION OF GRAPHICAL SYMBOLS IN IEC PUBLICATIONS

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**IEC 62648 edition 1.1 contains the first edition (2012-06) [documents 3C/1778/FDIS and 3C/1793/RVD] and its amendment 1 (2015-12) [documents 3C/1959/CDV and 3C/2077/RVC].**

**In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.**



International Standard IEC 62648 has been prepared by subcommittee 3C: Graphical symbols for use on equipment, of IEC technical committee 3: Information structures, documentation and graphical symbols.

It has the status of a horizontal standard in accordance with IEC Guide 108.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of the base publication and its amendment will remain unchanged until the stability 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

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## INTRODUCTION

A graphical symbol is defined as a visually perceptible figure with a particular meaning used to transmit information independently of language. Graphical symbols are used on equipment for a wide range of purposes. The understanding of such symbols can be improved by consistent design. This is particularly important where families of symbols are used in one location or on similar equipment. Good design also helps to maintain the legibility of graphical symbols when they are reduced to small dimensions for application. Thus, there is a need for those involved in technical works to collaborate with experts in SC 3C responsible for developing and maintaining graphical symbols for use on equipment to be standardized in the horizontal standard IEC 60417.

This international standard is intended for committees working on graphical symbols for use on equipment to be included in their product publications. It provides them with guidelines on how to create their own graphical symbols for use on equipment as well as on how to consult SC 3C so that these symbols are also included in IEC 60417.

This international standard provides commonly agreeable procedures among SC 3C and other committees developing product publications including graphical symbols for use on equipment in accordance with IEC Guide 108.

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# GRAPHICAL SYMBOLS FOR USE ON EQUIPMENT – GUIDELINES FOR THE INCLUSION OF GRAPHICAL SYMBOLS IN IEC PUBLICATIONS

## 1 Scope

This International Standard provides guidelines to ensure that graphical symbols for use on equipment in IEC product publications are consistent with the requirements of horizontal standard IEC 60417, and ISO 7000. This document is intended to be used by any technical committees and subcommittees to develop graphical symbols for use on equipment for inclusion in their product publications.

This document is based on and develops IEC Guide 108:2006, Clause 4.

For the creation of new graphical symbols for use on equipment, IEC 80416-1 and ISO 80416-2 are used. For the application of standardized graphical symbols for use on equipment, IEC 80416-3 and ISO 80416-4 are used.

This horizontal standard is primarily intended for use by technical committees in the preparation of standards in accordance with the principles laid down in IEC Guide 108.

One of the responsibilities of a technical committee is, wherever applicable, to make use of horizontal standards in the preparation of its publications. The contents of this horizontal standard will not apply unless specifically referred to or included in the relevant publications.

## 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 60417, *Graphical symbols for use on equipment*

IEC 80416-1:2008, *Basic principles for graphical symbols for use on equipment – Part 1: Creation of graphical symbols for registration*

IEC 80416-3:2002, *Basic principles for graphical symbols for use on equipment – Part 3: Guidelines for the application of graphical symbols*

IEC Guide 108:2006, *Guidelines for ensuring the coherency of IEC publications – Application of horizontal standards*

ISO 3864-1, *Graphical symbols – Safety colours and safety signs – Part 1: Design principles for safety signs and safety markings*

ISO 7000, *Graphical symbols for use on equipment – Index and synopsis*

ISO 7010:2011, *Graphical symbols – Safety colours and safety signs – Registered safety signs*

ISO 80416-2, *Basic principles of graphical symbols for use on equipment – Part 2: Form and use of arrows*

ISO 80416-4, *Basic principles for graphical symbols for use on equipment – Part 4: Guidelines for the adaptation of graphical symbols for use on screens and displays (icons)*

ISO/IEC Directives Part 2:2011, *Rules for the structure and drafting of International Standards*

ISO/IEC Directives:2011, *Supplement – Procedures specific to IEC*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC Guide 108 and Supplement to ISO/IEC Directives, and the following apply.

#### 3.1 equipment

associated assemblies intended to achieve a defined final objective

[SOURCE: 3.3 of IEC 80416-1:2008]

#### 3.2 graphical symbol

visual perceptible figure with a particular meaning used to transmit information independently of language

[SOURCE: 3.4 of IEC 80416-1:2008]

#### 3.3 graphical symbol for use on equipment

graphical symbol for use on associated assemblies intended to achieve a defined final objective

[SOURCE: adapted from 3.3 and 3.4 of IEC 80416-1:2008]

#### 3.4 safety related graphical symbol

graphical symbol for use on equipment that conveys a message with a relation to personal and/or equipment safety and that is not qualified as a safety sign, e.g. because the related risk is comparatively low

Note 1 to entry A safety related graphical symbol may e.g. express a prohibition (Do not ... !) or a *warning* related to a specific hazard (Caution! ...); however it is not required to use the safety colours and shapes according to ISO 3864-1. It can be standardized in IEC 60417 or ISO 7000.

#### 3.5 safety sign

sign which gives a general safety message, obtained by a combination of colour and geometric shape and which, by the addition of a graphical symbol, gives a particular safety message

[SOURCE: ISO 17724:2003, definition 68]

#### 3.6 safety symbol

graphical symbol used together with a safety colour and safety shape to form a safety sign

[SOURCE: ISO 17724:2003, definition 69]

**3.7****danger**

signal word used to indicate an imminently hazardous situation which, if not avoided, may result in death or serious injury

[SOURCE: ISO 17724:2003, definition 18]

**3.8****warning**

signal word used to indicate a potentially hazardous situation which, if not avoided, could result in death or serious injury

[SOURCE: ISO 17724:2003, definition 84]

**3.9****caution**

signal word used to indicate a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or damage to the equipment

[SOURCE: ISO 17724:2003, definition 6, modified]

**3.10****signal word**

word that calls attention to a potentially or imminently hazardous situation

[SOURCE: ISO 17724:2003, definition 73]

**3.11****icon**

graphical symbol presented on a screen or display

Note 1 to entry Icons can be static, interactive and change as the result of user input or dynamic and change as the result of equipment status.

[SOURCE: ISO 80416-4:2005, 3.3]

**3.12****horizontal standard**

IEC 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, modified]

**3.13****product publication**

publication covering a specific product or group of related products

Note 1 to entry In this international standard, the term product includes items such as process, service, installation and combinations thereof, commonly known as systems.

[SOURCE: IEC Guide 108:2006, 3.2 – Note has been modified]

**3.14****change request**

task description for addition, withdrawal or change of one or more graphical symbols in IEC 60417, submitted by an authorized person or body, which will be reviewed and updated by secretary of the responsible committee, possibly with the support of a maintenance team, for evaluation by the validation team VT 60417

Note 1 to entry It is possible that changes to IEC 60417 resulting from several change requests are combined, or that a single change request is subdivided, at any stage in the process.

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Note 2 to entry ISO TC 145/SC 3 operates similar procedures in respect of change requests relating to ISO 7000.

[SOURCE: Adapted from ISO/IEC Directives:2011, *Supplement – Procedures specific to IEC*, Annex J]

### 3.15

#### validation team

permanent, “executive”, group of experts appointed by and acting as delegates on behalf of their National Committees to execute evaluation and validation of Change Requests and to vote for their release as part of IEC 60417

Note 1 to entry All P-members have the right and duty to appoint an own member of the team. The validation team reports to the technical committee or subcommittee.

Note 2 to entry The described procedure in ISO/IEC Directives, *Supplement – Procedures specific to IEC* asks for very short response times from the validation team members. Therefore, the National Committees should appoint one or more deputies that can take over the task when the ordinary one for any reason is absent (travel, business, etc.)

Note 3 to entry It is for the National Committee to decide for how long time a member should be appointed, and also to organize the possible supporting network of experts on National level.

Note 4 to entry The secretariat manages the validation team.

[SOURCE: ISO/IEC Directives:2011, *Supplement – Procedures specific to IEC*, J.3.5, modified]

### 3.16

#### hard procedure

set of rules and guidelines to be followed in order for graphical symbols for use on equipment to be standardized in IEC 60417 or in ISO 7000 and to be referred to in IEC publications, i.e. provisions in relevant parts of ISO/IEC Directives and IEC Guide 108

### 3.17

#### soft procedure

set of rules and guidelines to be followed in order for graphical symbols for use on equipment to be designed, and for standardized graphical symbols for use on equipment to be applied to and adapted as icons, i.e. provisions in relevant parts of IEC 80416-1, ISO 80416-2, IEC 80416-3 and ISO 80416-4

## 4 Basic requirement for graphical symbols for use on equipment to be included in IEC publications

Graphical symbols for use on equipment included in IEC publications shall be in accordance with IEC 60417 and ISO 7000. To meet this requirement, the provisions given in Clause 5 shall be followed.

Annex A provides hard and soft procedures to be followed, Annex B provides examples of the applications of graphical symbols for use on equipment, and Annex C provides a form to propose change requests.

## 5 Principal guidelines

### 5.1 General

The method of referring to graphical symbols for use on equipment shall be in accordance with IEC 80416-3. Regarding the designation systems of graphical symbols for use on equipment, IEC 80416-1:2008, Annex C, shall apply.

## 5.2 Coherency of graphical symbols for use on equipment

All graphical symbols for use on equipment within product publications shall be coherent without contradictions. For this purpose, the IEC and ISO corpus of graphical symbols for use on equipment have been standardized and maintained in the horizontal standard IEC 60417, and ISO 7000. Therefore, all technical committees and subcommittees shall consult IEC 60417 and ISO 7000 in advance of drafting any graphical symbols for use on equipment for their own purpose to be included in product publications.

## 5.3 Procedures to develop product publications including graphical symbols for use on equipment<sup>1</sup>

**5.3.1** Committees developing product publications, dealing with graphical symbols for use on equipment, shall incorporate IEC 60417 and ISO 7000 into their own publication by reference. If necessary, they may specify additional details relevant to their product area in accordance with IEC 80416-3:2002, 4.4.

Where, exceptionally, it is not practicable to reference the standards referred to above, committees should ensure that such parts of those standards as are used are not altered when introduced into their own publications. In this case, IEC 60417 concerned should be indicated.

**5.3.2** Committees responsible for product publications which include non-standardized graphical symbols for use on equipment should ensure that they are adapted to comply with the design rules in IEC 80416-1 and ISO 80416-2 and requirements of IEC 60417 or ISO 7000 when the product publication is next amended or revised.

**5.3.3** If a committee determines that graphical symbols in IEC 60417 and ISO 7000 are not adequate for its intended application, it shall submit, to SC 3C or ISO TC 145/SC 3, respectively, a formal proposal for change request together with a proposed symbol which complies with the appropriate design principles.

If a committee responsible for a product standard determines that graphical symbols in IEC 60417 are not suitable for the committee's intended application it shall submit a formal proposal to SC 3C for a change request for either:

- a new graphical symbol; or,
- an amendment to an existing graphical symbol standardized IEC 60417.

**5.3.4** If, after consultation between SC 3C and the committee, SC 3C considers that the proposed new graphical symbol or proposed amendment to an existing graphical symbol are not suitable for inclusion in IEC 60417, the committee shall request a derogation from IEC 60417 from the SMB and give detailed reasons for the request.

If the request for a derogation is accepted by the SMB, the committee may include the new or amended graphical symbol in the product standard and this shall be indicated in the foreword of the standard (see ISO/IEC Directives, Part 2:2011, 6.1.3).

Relevant documents generated in the course of the development of the project should be drawn to the attention of SC 3C responsible for IEC 60417.

**5.3.5** In the case of change requests related to IEC 60417, realistic target dates shall be agreed between SC 3C and the committee concerned.

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<sup>1</sup> 5.3.1 to 5.3.5 are adapted from the relevant part of IEC Guide 108.