

# INTERNATIONAL STANDARD



HORIZONTAL PUBLICATION

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

IEC 62648:2022

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

## FOREWORD

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IEC 62648 has been prepared by subcommittee 3C: Graphical symbols for use on equipment, of IEC technical committee 3: Documentation, graphical symbols and representations of technical information. It is an International Standard.

This second edition cancels and replaces the first edition published in 2012 and Amendment 1:2015. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) new terms and definitions in IEC Guide 108 have been incorporated;
- b) the designation "IEC 60417 SDB" has been introduced following the publication of IEC Supplement:2022, Annex SK;
- c) Subclause 6.3 has been adapted in line with IEC Guide 108:2019, Clause 8.

The text of this International Standard is based on the following documents:

Draft	Report on voting
3C/2497/CDV	3C/2525/RVC

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

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/publications](http://www.iec.ch/publications).

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under [webstore.iec.ch](http://webstore.iec.ch) in the data related to the specific document. At this date, the document 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 subcommittee 3C: Graphical symbols for use on equipment, of IEC technical committee 3: Documentation, graphical symbols and representations of technical information (SC 3C) responsible for developing and maintaining graphical symbols for use on equipment to be standardized in the horizontal publication IEC 60417.

This document is intended for IEC committees working on graphical symbols for use on equipment to be included in their product publications. It provides them with guidelines and requirements 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 advance or in parallel in IEC 60417.

This document provides commonly agreeable procedures in SC 3C and in 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 document provides guidelines to help ensure that the requirement in ISO/IEC Directives, Part 2:2021, 28.6.2 is met, such that graphical symbols for use on equipment in IEC product publications are consistent with the requirements of horizontal publications IEC 60417, and ISO 7000. This document is intended to be used by any IEC and ISO committees to develop graphical symbols for use on equipment for inclusion in their product publications.

This document is based on and develops upon IEC Guide 108:20062019, Clause 4.8.

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

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

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

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. 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*, available at <http://www.graphical-symbols.info/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 108:20062019, ~~*Guidelines for ensuring the coherency of IEC publications – Application of horizontal standards*~~ *Guidelines for ensuring the coherence of IEC publications – Horizontal functions, horizontal publications and their application*

ISO/IEC Directives Part 1:2022, *Procedures for the technical work*

ISO/IEC Directives Part 2:20142021, *Principles and rules for the structure and drafting of ISO and IEC documents*

ISO/IEC Directives, Supplement:20142022, *Procedures specific to IEC*

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~~, available at <http://www.graphical-symbols.info/equipment>

ISO 7010:~~2011~~, *Graphical symbols – Safety colours and safety signs – Registered safety signs*, available at <https://www.iso.org/obp>

ISO 80416-2, *Basic principles for 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)*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC Guide 108, ISO/IEC Directives Part 1, ISO/IEC Directives Part 2, ISO/IEC Directives IEC Supplement, and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

#### 3.1 equipment

associated assemblies intended to achieve a defined final objective

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

#### 3.2 graphical symbol

visually ~~perceptive~~ perceptible figure with a particular meaning used to transmit information independently of language

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

#### 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. A safety related graphical symbol ~~can~~ may 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, 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, 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, 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, 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, 6, modified – The phrase "or damage to the equipment" has been added.]

### 3.10 signal word

word that calls attention to a potentially or imminently hazardous situation

[SOURCE: ISO 17724:2003, 73]

### 3.11 icon

graphical symbol presented on a screen or display

Note 1 to entry: Icons can be static and 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 publication

~~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~~

document dealing with a subject relevant to a number of committees and of crucial importance to ensure the coherence amongst publications

[SOURCE: IEC Guide 108:2006/2019, 3.1, modified 3.1.3]

### 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]~~

document covering a specific product or family of related products within the scope of a single product committee

[SOURCE: IEC Guide 108:2019, 3.1.4]

### 3.14 change request

#### CR

~~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.~~

~~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]~~

proposal to add, to change or to withdraw one or more graphical symbols for use on equipment in IEC 60417 SDB

Note 1 to entry: A CR shall be prepared by filling in the CR form given in the URL shown in Annex C.

Note 2 to entry: A CR should normally be linked to data describing graphical symbols by filling in the form given in Annex C.

[SOURCE: ISO/IEC Directives, IEC Supplement:2022, SK.3.1.10, modified – The words "data elements in an SDB" have been replaced by "graphical symbols for use on equipment in IEC 60417 SDB", Notes 1 and 2 to entry have been replaced by different Notes 1 and 2 to entry (see SK.4.1.3).]

### 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]~~

### 3.15

#### **SDB team**

#### **SDB team for IEC 60417**

permanent group of experts appointed by and acting as delegates on behalf of their National Committees at the evaluation stage and validation stage

[SOURCE: ISO/IEC Directives, IEC Supplement:2022, SK.3.3.3, modified – In accordance with Note 1 to entry to SK.3.3.3, the name "SDB team for IEC 60417" has been added to the term. The term "National Bodies" has been replaced by "National Committees" and Note 1 to entry omitted.]

### 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 and be 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 of this document shall be followed.

Annex A provides hard and soft procedures to be followed, Annex B provides requirements and examples of the applications of graphical symbols for use on equipment, and Annex C provides a URL for forms, together with visual images, to propose change requests to IEC 60417 SDB.

## **5 Principal guidelines**

### **5.1 General**

The method of referring to graphical symbols for use on equipment in IEC publications 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 has been standardized and maintained in the horizontal publication IEC 60417, and ISO 7000. Therefore, all committees 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.