IEC 80416-1

Edition 2.0 2008-11

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Basic principles for graphical symbols for use on equipment –
Part 1: Creation of graphical symbols for registration

Principes de base pour les symboles graphiques utilisables sur le matériel –
Partie 1: Création des symboles graphiques pour enregistrement

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INTERNATIONAL ELECTROTECHNICAL COMMISSION
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BASIC PRINCIPLES FOR GRAPHICAL
SYMBOLS FOR USE ON EQUIPMENT –

Part 1: Creation of graphical symbols for registration

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.

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8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.

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International Standard IEC 80416-1 has been prepared by IEC subcommittee 3C: Graphical symbols for use on equipment, of IEC technical committee 3: Information structures, documentation and graphical symbols.

This International Standard has been prepared in co-operation with ISO/TC145/SC 3.

It is published as a double logo standard.

This second edition cancels and replaces the first edition published in 2001. This edition constitutes a technical revision.

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

a) Clause 8 in the previous edition is moved to Clause 4;

b) Mandatory requirement for the line width in symbol originals is changed to 2 mm or 4 mm (see 6th paragraph of 7.3);

c) For negation of a graphical symbol, a single diagonal bar is allowed in addition to two diagonal bars at right angles;

d) A new meaning of negation "do not" is allowed;

e) Some freedom is given for use of the basic pattern such as for symbol originals to be within the 75 mm square instead of the octagon;

f) Annex A (normative) is newly introduced for provisions on title, description and notes;

g) The nature of notes is changed to be purely informative; and

h) Clause 10 in the previous edition is moved to Annex C (informative).

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

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

FDIS	Report on voting
3C/1590/FDIS	3C/1609/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table. In ISO, the standard has been approved by 7 P members out of 7 having cast a vote.

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

In order to collect all requirements concerning relevant basic principles within one single numerical series, ISO technical committee 145: Graphical symbols and IEC technical committee 3 agreed to publish all parts of this International Standard within the 80416 series. The Technical Management Board of ISO and the Standardization Management Board of IEC have decided that, for each part of this series, one organisation shall be chosen responsible. The technical committees involved have agreed not to change any part of International Standard 80416 without mutual agreement.

International Standard 80416 consists of the following parts, published under the general title *Basic principles for graphical symbols for use on equipment*:

Part 1: 2008, Creation of graphical symbols for registration (*published by IEC*)

Part 2: 2001, Form and use of arrows (*published by ISO*)

Part 3: 2002, Guidelines for the application of graphical symbols (*published by IEC*)

Part 4: 2005, Guidelines for the adaptation of graphical symbols for use on screen and displays (icons) (*published by ISO*)

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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

• reconfirmed,

• withdrawn,

• replaced by a revised edition, or

• amended.

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 symbols when they are reduced to small dimensions for application. Thus, there is a need to standardize the principles for creating graphical symbols for use on equipment to ensure visual clarity, to maintain consistency and thereby to improve recognition.

International Standard 80416 is a multi-part standard which provides basic principles and guidelines for the creation of graphical symbols for use on equipment (Parts 1 and 2) and also principles and guidelines for adapting registered graphical symbols for use in practice (Parts 3 and 4).

This part of the multi-part standard addresses the basic rules used to create graphical symbols for use on equipment, including line widths, negation elements, and the use of the basic pattern. These design principles should be applied to all graphical symbols for use on equipment. They are required for graphical symbols for registration in IEC 60417 and ISO 7000.

It is recommended that symbol originals intended for specific fields of application are also published in the appropriate technical product standard.

BASIC PRINCIPLES FOR GRAPHICAL
SYMBOLS FOR USE ON EQUIPMENT –

Part 1: Creation of graphical symbols for registration

1   Scope

This part of IEC 80416 provides basic principles and guidelines for the creation of graphical symbols for registration, and provides the key principles and rules for the preparation of title, description and note(s).

IEC 80416-1 applies to graphical symbols used:

– to identify the equipment or a part of the equipment (for example, controls or displays);
– to indicate functional states or functions (for example, on, off, alarm);
– to designate connections (for example, terminals, filling points);
– to provide information on packaging (for example, identification of content, instructions for handling);
– to provide instructions for the operation of the equipment (for example, limitations of use).

IEC 80416-1 does not apply to graphical symbols for:

– safety signs;
– use on drawings and diagrams;
– use in technical documentation of products and in technical product documentation;
– use for public information.

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 referenced documents are indispensable for the application 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*

ISO/IEC Guide 71, *Guidelines for standards developers to address the needs of older persons and persons with disabilities*

ISO/IEC Guide 74, *Graphical symbols – Technical guidelines for the consideration of consumers' needs*

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

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

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
basic line width
line width used to draw the most significant part of a symbol original; 2 mm or 4 mm

3.2
description
normative text which defines the purpose, the application and the use of the graphical symbol, and optional product area

3.3
equipment
associated assemblies intended to achieve a defined final objective

3.4
graphical symbol
visually perceptible figure with a particular meaning used to transmit information independently of language

3.5
graphical symbol element
part of a graphical symbol which is used with a particular meaning in more than one graphical symbol

NOTE 1 Letters, numerals, punctuation marks and mathematical symbols may be used as graphical symbol elements (see ISO 31 and IEC 60027).

NOTE 2 A graphical symbol element with a specific meaning may be used to provide a common concept in the construction of a symbol family.

3.6
graphical symbol for registration
draft symbol original including the basic pattern, title, description and optional notes

3.7
nominal size
50 mm; the lateral dimension of the basic square 2 as shown in the basic pattern

3.8
symbol original
drawing of a graphical symbol, including the corner markings, prepared in accordance with IEC 80416-1 and, where appropriate, ISO 80416-2, and registered in IEC 60417 or ISO 7000

3.9
title
unique name by which a graphical symbol is identified and spoken of

NOTE The title should be as short as possible; it is only intended to provide a unique name for the graphical symbol and, where appropriate, another name(s), but not to describe its application.