



SLOVENSKI STANDARD

SIST EN 60073:2001

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Basic and safety principles for man-machine interface, marking and identification - Coding principles for indication devices and actuators

Basic and safety principles for man-machine interface, marking and identification -
Coding principles for indication devices and actuators

Grund- und Sicherheitsregeln für die Mensch-Maschine-Schnittstelle, Kennzeichnung -
Codierungsgrundsätze für Anzeigengeräte und Bedienteile

Principes fondamentaux et de sécurité pour les interfaces homme-machines, le
marquage et l'identification - Principes de codage pour les dispositifs indicateurs et les
organes de commande

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Ta slovenski standard je istoveten z: EN 60073:1996

ICS:

13.110	Varnost strojev	Safety of machinery
29.020	Elektrotehnika na splošno	Electrical engineering in general

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 60073

December 1996

ICS 13.110; 29.020

Supersedes EN 60073:1993 and its corrigendum Apr. 1993

Descriptors: Indicator light, push-button, mechanical indicator, colour

English version

**Basic and safety principles for man-machine
interface, marking and identification
Coding principles for indication devices and actuators
(IEC 73:1996)**

Principes fondamentaux et de sécurité
pour les interfaces homme-machines,
le marquage et l'identification
Principes de codage pour les dispositifs
indicateurs et les organes de commande
(CEI 73:1996)

Grund- und Sicherheitsregeln für
die Mensch-Maschine-Schnittstelle,
Kennzeichnung
Codierungsgrundsätze für Anzeigen-
geräte und Bedienteile
(IEC 73:1996)

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This European Standard was approved by CENELEC on 1996-10-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 16/356/FDIS, future edition 5 of IEC 73, prepared by IEC TC 16, Basic and safety principles for man-machine interface, marking and identification, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60073 on 1996-10-01.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1997-07-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1997-07-01

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.
In this standard, annexes A and ZA are normative and annexes B, C and D are informative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 73:1996 was approved by CENELEC as a European Standard without any modification.

In the official version, for annex D, Bibliography, the following note has to be added for the standard indicated:

IEC 204-1 NOTE: Harmonized as 60204-1:1992 (modified).



Annex ZA (normative)

Normative references to international publications
with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE: When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 27	series	Letter symbols to be used in electrical technology	HD 245	series
IEC 50(441)	1984	International electrotechnical vocabulary (IEV) - Chapter 441: Switchgear, controlgear and fuses	-	-
IEC 50(845)	1987	Chapter 845: Lighting	-	-
IEC 417	1973	Graphical symbols for use on equipment - Index, survey and compilation of the single sheets	HD 243 S12 ¹⁾	1995
IEC 447	1993	Man-machine interface (MMI) - Actuating principles	EN 60447	1993
IEC 617	series	Graphical symbols for diagrams	EN 60617	series
IEC 1310-1	1995	Safety of machinery - Indication, marking and actuation Part 1: Requirements for visual, auditory and tactile signals	EN 61310-1	1995
ISO 3864	1984	Safety colours and safety signs	-	-
ISO 7000	1989	Graphical symbols for use on equipment - Index and synopsis	-	-
ISO 8201	1987	Acoustics - Audible emergency evacuation signal	-	-
CIE 2-2 (TC 1.6)	1975	Colors of light signals	-	-

1) HD 243 S12 includes supplements A:1974 to M:1994 to IEC 417.

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**NORME
INTERNATIONALE
INTERNATIONAL
STANDARD**

**CEI
IEC
73**

Cinquième édition
Fifth edition
1996-10

**PUBLICATION FONDAMENTALE DE SÉCURITÉ
BASIC SAFETY PUBLICATION**

**Principes fondamentaux et de sécurité
pour les interfaces homme-machines,
le marquage et l'identification –
Principes de codage pour les dispositifs
indicateurs et les organes de commande
(standards.iteh.ai)**

**Basic and safety principles
for man-machine interface, marking
and identification –
Coding principles for indication
devices and actuators**

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**BASIC AND SAFETY PRINCIPLES FOR MAN-MACHINE INTERFACE,
MARKING AND IDENTIFICATION –****Coding principles for indication devices
and actuators**

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 73 has been prepared by IEC technical committee 16: Basic and safety principles for man-machine interface, marking and identification. This fifth edition cancels and replaces the fourth edition published in 1991 and constitutes a technical revision.

It has the status of a basic safety publication in accordance with IEC Guide 104.

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

FDIS	Report on voting
16/356/FDIS	16/361/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.

Annex A forms an integral part of this standard.

Annexes B, C and D are for information only.

INTRODUCTION

This basic safety publication is intended for use by technical committees in the preparation of standards in accordance with the principles laid down in IEC Guide 104 [1]* and in ISO/IEC Guide 51 [2]*.

It should be noted that one of the responsibilities of a technical committee is, wherever possible, to include or refer to the requirements of basic safety publications in standards for equipment within its scope. Consequently, the requirements of this basic safety publication apply only if they are included, or are referred to in those standards.

Supervision and intervention are the principal tasks of personnel engaged in the monitoring and control of equipment or processes.

Indicating devices for the representation of conditions, and actuating devices to enable intervention under normal and fault conditions, are essential to this purpose.

The information presented should meet the needs of the users for the monitoring and control tasks which they are required to perform, for example, in extensive industrial processes.

Safety and ergonomic aspects should also be taken into account. The use of only a single means of coding is often insufficient to ensure unambiguous representation of information.

Apart from an unambiguous marking of the indicating and actuating devices there is a requirement for a clear and consistent system of coding.

The choice of a code will depend on the information which it is intended to impart. This may relate to the state of equipment (or part of it), to the condition of a process, and/or to the effects which this condition has on persons, property and the environment.

The user is required to decide on which of these criteria the coding for the relevant application is to be based.

* Figures in square brackets refer to the bibliography given in annex D.

BASIC AND SAFETY PRINCIPLES FOR MAN-MACHINE INTERFACE, MARKING AND IDENTIFICATION –

Coding principles for indication devices and actuators

1 Scope

This International Standard establishes general rules for assigning particular meanings to certain visual, acoustic and tactile indications in order to

- increase the safety of persons, property and/or the environment through the safe monitoring and control of the equipment or process;
- facilitate the proper monitoring, control and maintenance of the equipment or process;
- facilitate the rapid recognition of control conditions and actuator positions.

This standard is for general application:

- from simple cases such as single indicator lights, push-buttons, mechanical indicators, light emitting diodes (LEDs) or video display screens to extensive control stations which may include a wide variety of devices for controlling an equipment or process;
- where the safety of persons, property and/or the environment is involved, and also where the above-mentioned codes are used to facilitate the proper monitoring and controlling of equipment;
- where a particular kind of coding is to be assigned by a technical committee to a special function.

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2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 27, *Letter symbols to be used in electrical technology*

IEC 50(441): 1984, *International Electrotechnical Vocabulary (IEV) – Chapter 441: Switchgear, controlgear and fuses*

IEC 50(845): 1987, *International Electrotechnical Vocabulary (IEV) – Chapter 845: Lighting*

IEC 417, *Graphical symbols for use on equipment – Index, survey and compilation of the single sheets*

IEC 447: 1993, *Man-machine interface (MMI) – Actuating principles*

IEC 617, *Graphical symbols for diagrams*

IEC 1310-1: 1995, *Safety of machinery – Indication, marking and actuation – Part 1: Requirements for visual, auditory and tactile signals*

ISO 3864: 1984, *Safety colours and safety signs*

ISO 7000: 1989, *Graphical symbols for use on equipment – Index and synopsis*

ISO 8201: 1987, *Acoustics – Audible emergency evacuation signal*

CIE (International Commission on Illumination): Publication No. 2-2 (TC 1.6): 1975, *Colors of light signals*

3 Definitions

For the purpose of this standard, the following definitions apply:

3.1 **coding**: The systematic representation of specific signals or values by another set of signals, which has to conform to a definite set of rules. [IEC 1310-1:1995, 3.22]

3.2 **indicating device**: A mechanical, optical or electrical device providing visual, acoustic or tactile information.

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3.2.1 **acoustic signal***: A message conveyed by means of tone, frequency and intermittency, emanating from a sound source.

3.2.2 **tactile signal***: A message conveyed by means of vibration, force, surface roughness, contour or position.

3.2.3 **visual signal***: A message conveyed by means of brightness, contrast, colour, shape, size or position.

3.3 **actuator**: The part of the actuating system which receives a human actuating action. [IEC 447:1993, 3.1]

NOTE – For the purpose of this standard the actuator in the case of an interactive screen display is considered to be that part of the screen display which represents the actuator function.

3.4 **mechanical indicator**: Indicating device which forms an integral part of a mechanical or electro-mechanical switching device (e.g. circuit-breaker) and which indicates whether it is in the OPEN or CLOSED position or an intermediate position (e.g. star position of a star-delta starter) but which is not intended as a manual actuator.

* For the purpose of this standard the definition differs from that in IEC 447.