



SLOVENSKI STANDARD
SIST EN 60447:2001
01-september-2001

Man-machine interface (MMI) - Actuating principles

Man-machine interface (MMI) - Actuating principles

Mensch-Maschine-Schnittstelle (MMI) - Bedienungsgrundsätze

Interface homme-machine (IHM) - Principes de manoeuvre

Ta slovenski standard je istoveten z: EN 60447:1993

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EUROPEAN STANDARD

EN 60447

NORME EUROPEENNE

EUROPÄISCHE NORM

December 1993

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Supersedes HD 331 S1:1977

Descriptors: Electrical equipment, actuating, direction of action, actuators, manual actuators, interface, stop, identification, signal, safety, principle

ENGLISH VERSION

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

Interface homme-machine. (IHM)
Principes de manoeuvre
(CEI 447:1993)

Bedienungsgrundsätze für die
Mensch-Maschine-Schnittstelle (MMI)
(IEC 447:1993)

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This European Standard was approved by CENELEC on 1993-12-08. 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 CENELEC questionnaire procedure, performed for finding out whether or not the International Standard IEC 447:1993 could be accepted without textual changes, has shown that no common modifications were necessary for the acceptance as European Standard.

The reference document was submitted to the CENELEC members for formal vote and was approved by CENELEC as EN 60447 on 8 December 1993.

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1994-12-01
- latest date of withdrawal of conflicting national standards (dow) 1994-12-01

Annexes designated "normative" are part of the body of the standard. Annexes designated "informative" are given only for information. In this standard, annexes A and ZA are normative and annex B is informative.

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ENDORSEMENT NOTICE
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The text of the International Standard IEC 447:1993 was approved by CENELEC as a European Standard without any modification.

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ANNEX ZA (normative)

OTHER INTERNATIONAL PUBLICATIONS QUOTED IN THIS STANDARD
WITH THE REFERENCES OF THE RELEVANT 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.

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

IEC Publication	Date	Title	EN/HD	Date
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50(441)	1984	International Electrotechnical Vocabulary (IEV) - Chapter 441: Switchgear, controlgear and fuses	-	-
73	1991	Coding of indicating devices and actuators by colours and supplementary means	EN 60073	1993
Guide 104	1984	Guide to the drafting of safety standards, and the role of Committees with safety pilot functions and safety group functions		

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Interface homme-machine (IHM) –
Principes de manoeuvre

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International Electrotechnical Commission
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**MAN-MACHINE INTERFACE (MMI) –
ACTUATING PRINCIPLES**

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 cooperation 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, prepared by technical committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 3) They have the form of recommendations for international use 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.

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This International Standard has been prepared by IEC technical committee 16: Terminal markings and other identifications.

This second edition of IEC 447 replaces the first edition issued in 1974, 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 previous edition and the following documents:

DIS	Report on Voting
16(CO)73	16(CO)74

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

Annexe A forms an integral part of this Standard.

Annex B is for information only.

INTRODUCTION

Different kinds of actuators enable electrical equipment and processes to be operated and maintained under normal and fault conditions.

In modern equipment, the moving of an actuator in a certain direction is only one method of actuation. In addition, actuators or data input devices arranged in the form of function or alphanumeric keyboards, or other kinds of actuator (e.g. light pen, touch sensitive screen, mouse), are in general use for computerized equipment.

Actuators as a part of the man-machine interface may have a different importance in the dialogue between the operator and the equipment or machine.

Standardization is especially important where safety is concerned (e.g. where an incorrect actuation may cause damage, or where a frequent or rapid actuation is necessary, such as in the operation of cranes or transport vehicles), and is particularly necessary in the case of equipment likely to be operated by unskilled persons.

Ergonomic aspects should also be taken into account.

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MAN-MACHINE INTERFACE (MMI) – ACTUATING PRINCIPLES

1 Scope

This International Standard establishes general actuating principles for manually operated actuators forming part of the man-machine interface associated with electrical equipment, in order to:

- increase the safety (e.g. of persons, property, environment) through the safe operation of the equipment;
- facilitate the proper and timely operation of the actuators.

These principles apply, not only for the operation of electrical equipment, machines, or complete plant under normal conditions, but also under fault or emergency conditions.

This Standard is for general application, from simple cases such as single actuators (e.g. push-buttons) to multiple actuators, forming a part of a large assembly of electrical and non-electrical equipment, or a part of a central process control station.

This Standard establishes correlations between the function of an actuator and its direction of actuating or location in relation to other actuators.

In the absence of particular rules, this standard may also be applied to actuators operated by a part of the human body other than the hand (e.g. to foot-operated devices).

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This basic safety publication is intended for use by technical committees in the preparation of standards; it is not intended to be used on its own except in the absence of such standards.

Where no safety consideration is involved, the relevant technical committee may permit specific exclusions within the framework of this basic safety publication, and according to the rules given in IEC Guide 104.

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

IEC 73: 1991, *Coding of indicating devices and actuators by colours and supplementary means*

IEC Guide 104: 1984, *Guide to the drafting of safety standards, and the role of Committees with safety pilot functions and safety group functions*