SLOVENSKI STANDARD
SIST EN 61010-1:1999

01-julij-1999

Safety requirements for electrical equipment for measurement, control and laboratory use -- Part 1: General requirements (IEC 61010-1:1990+A1:1992, modified)

Safety requirements for electrical equipment for measurement, control and laboratory use -- Part 1: General requirements

Sicherheitsbestimmungen für elektrische Meß-, Steuer-, Regel- und Laborgeräte -- Teil 1: Allgemeine Anforderungen

Règles de sécurité pour appareils électriques de mesurage, de régulation et de laboratoire -- Partie 1: Prescriptions générales

Ta slovenski standard je istoveten z: EN 61010-1:1993

ICS:

19.080	Električno in elektronsko preskušanje	Electrical and electronic testing
71.040.10	Kemijski laboratoriji. Laboratorijska oprema	Chemical laboratories. Laboratory equipment

SIST EN 61010-1:1999 en

EUROPEAN STANDARD

NORME EUROPEENNE

EUROPÄISCHE NORM

EN 61010-1

April 1993

UDC 62-5:542.23:62-78:614.8

Descriptors: Electrical equipment for measurement, electrical equipment for control, electrical equipment for laboratory use, safety requirements

ENGLISH VERSION

Safety requirements for electrical equipment for measurement, control and laboratory use
Part 1: General requirements
(IEC 1010-1:1990 + A1:1992, modified)

Règles de sécurité pour appareils électriques de mesurage, de régulation et de laboratoire
Partie 1: Prescriptions générales
(CEI 1010-1:1990 + A1:1992, modifiés)

Sicherheitsanforderungen an elektrische Meß-, Steuer-, Regel- und Laborgeräte
Teil 1: Allgemeine Anforderungen

(IEC 1010-1:1990 + A1:1992, modifiziert)

This European Standard was approved by CENELEC on 1993-03-09. 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

Further to the decision of the 72nd Technical Board meeting of CENELEC, the text of the International Standard IEC 1010-1:1990 with inclusion of DIS 66E(C.O.)12, ADIS 66E(C.O.)15 and 15A, together with a common modification prepared by Reporting Secretariat SR 66E, was submitted to the CENELEC members for formal vote.

This draft was approved by CENELEC as EN 61010-1 on 9 March 1993.

NOTE: Documents DIS 66E(C.O.) 12 and ADIS 66E(C.O.)15 and 15A were published as amendment 1 to the International Standard IEC 1010-1 in September 1992.

This European Standard supersedes HD 401 S1:1980.

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1993-12-01
- latest date of withdrawal of conflicting national standards (dow) 1993-12-01

For products which have complied with HD 401 S1:1980 before 1993-12-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1998-12-01.

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given only for information.
In this standard, annexes A, B, C, D, E, F, G and ZA are normative and annexes H, J, K, L and M are informative.

This European Standard constitutes part 1 of a series of standards dealing with safety requirements for electrical equipment for measurement, control, and laboratory use.

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

ENDORSEMENT NOTICE

The text of the International Standard IEC 1010-1:1990 and its amendment 1:1992 was approved by CENELEC as a European Standard with agreed common modifications as given below.

COMMON MODIFICATIONS

General modification: Replace the references to modified IEC Publications by the reference of the relevant EN/HD as indicated in annexes L and ZA.

Introduction

Delete the first paragraph.

1 Scope and object

1.2 Add:

Equipment within the scope of this standard is also to meet the requirements of the Electromagnetic Compatibility Directive 89/336/EEC. Some equipment (where applicable) may also need to meet the requirements of the Machinery Directive 89/392/EEC.

The Machinery Directive has a wider scope than EN 61010-1 (for example safety of installation and servicing personnel) and addresses some hazards not currently addressed in EN 61010-1. A range of standards planned to complement the requirements of the Machinery Directive will give requirements in these areas. Until these standards are available, the Machinery Directive draws attention to any existing national standards or specifications, but in most cases the requirements of the Directive itself are at present the only Guide.

Annex L Bibliography

Add the following note for the IEC standards indicated:

IEC 112	NOTE: Harmonized as HD 214 S2 (not modified)
IEC 127	NOTE: Harmonized as HD 109 S3:1983 (not modified)
IEC 204	NOTE: Harmonized as EN 60204 (modified)
IEC 320	NOTE: Harmonized as EN 60320-1:1987 (modified)
IEC 335	NOTE: Harmonized as EN 60335 (modified)
IEC 364-1	NOTE: Harmonized as HD 384.1 S1:1979 (modified)

COMMON MODIFICATIONS (concluded)

IEC 414	NOTE: Harmonized as HD 215 S1:1974 (modified)
IEC 439-1	NOTE: Harmonized as EN 60439-1:1990 (modified)
IEC 445	NOTE: Harmonized as EN 60445:1990 (not modified)
IEC 447	NOTE: Harmonized as HD 331 S1:1977 (not modified)
IEC 536	NOTE: Harmonized as HD 366 S1:1977 (not modified)
IEC 601	NOTE: Harmonized as EN 60601 (not modified)
IEC 742	NOTE: Harmonzied as EN 60742:1989 (modified)
IEC 950	NOTE: Harmonized as EN 60950:1988 (modified)

ANNEX ZA (normative)

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

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
50(151)	1978	International Electrotechnical Vocabulary (IEV) - Part 151: Electrical and magnetic devices	-	-
50(351)	1975	Part 351: Automatic control	-	-
51	series	Direct acting indicating analogue electrical measuring instruments and their accessories	EN 60051	series
60-2	1973	High-voltage test techniques Part 2: Test procedures	-	-
65 (mod)	1985	Safety requirements for mains operated electronic and related apparatus for household and similar general use	HD 195 S6	1988
68-2-3	1969	Environmental testing Part 2: Tests - Test Ca: Damp heat, steady state	HD 323.2.3 S2*	1987
68-2-6	1982	Part 2: Tests - Test Fc and guidance: Vibration (sinusoidal)	HD 323.2.6 S2*	1988
68-2-31	1969	Test Ec: Drop and topple, primarily for equipment-type specimens	EN 60068-2-31*	1993
85	1984	Thermal evaluation and classification of electrical insulation	HD 566 S1	1990
227 (mod)	series	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V	HD 21	series
245 (mod)	series	Rubber insulated cables of rated voltages up to and including 450/750 V	HD 22	series
309	1969	Plugs, socket-outlets and couplers for industrial purposes	HD 196 S1*	1978

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* HD 323.2.3 S2 includes A1:1984 to IEC 68-2-3
HD 323.2.6 S2 includes A1:1983 + A2:1985 to IEC 68-2-6
EN 60068-2-31 includes A1:1982 to IEC 68-2-31
HD 196 S1 includes supplement A:1973 to IEC 309

IEC Publication	Date	Title	EN/HD	Date
359	1987	Expression of the performance of electrical and electronic measuring equipment	-	-
417	1973	Graphical symbols for use on equipment Index, survey and compilation of the single sheets	HD 243 S10*	1993
529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529	1991
617-2	1983	Graphical symbols for diagrams Part 2: Symbol elements, qualifying symbols and other symbols having general application	-	-
664	-	Insulation coordination for equipment within low-voltage systems	-	-
707	1981	Methods of test for the determination of the flammability of solid electrical insulating materials when exposed to an igniting source	HD 441 S1	1983
799 (mod)	1984	Cord sets	EN 60799	1987
817	1984	Spring-operated impact-test apparatus and its calibration	HD 495 S1	1987
825 (mod)	1984	Radiation safety of laser products, equipment classification, requirements and user's guide	HD 482 S1*	1988
947-1 (mod)	1988	Low-voltage switchgear and controlgear Part 1: General rules	EN 60947-1	1991
947-3 (mod)	1990	Low-voltage switchgear and controlgear Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units	EN 60947-3	1992
990	1990	Methods of measurement of touch-current and protective conductor current	-	-

Other publications

ISO 306:1987 - Plastics - Thermoplastic materials - Determination of Vicat softening temperature

ISO 3864:1984 - Safety colours and safety signs

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* HD 243 S10 includes supplements A:1974 to K:1991 to IEC 417
HD 482 S1 is superseded by EN 60825:1991 which is based on IEC 825:1984 + A1:1990

NORME INTERNATIONALE
INTERNATIONAL STANDARD

CEI
IEC
1010-1

Première édition
First edition
1990-09

PUBLICATION GROUPÉE DE SÉCURITÉ
GROUP SAFETY PUBLICATION

Règles de sécurité pour appareils électriques de mesurage, de régulation et de laboratoire

Partie 1:
Prescriptions générales

Safety requirements for electrical equipment for measurement, control, and laboratory use

Part 1:
General requirements

Numéro de référence
Reference number
CEI/IEC 1010-1: 1990

CONTENTS

Clause Page

Clause Page

Annexes

INTERNATIONAL ELECTROTECHNICAL COMMISSION

SAFETY REQUIREMENTS FOR ELECTRICAL EQUIPMENT FOR MEASUREMENT, CONTROL, AND LABORATORY USE

Part 1: General requirements

FOREWORD

1) 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.

2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.

3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.

This standard has been prepared by Sub-Committee 66E: Safety of measuring, control and laboratory equipment of IEC Technical Committee No. 66: Electrical and electronic test and measuring instruments, systems and accessories. It constitutes Part 1 of a series of publications dealing with safety requirements for electrical equipment for measurement, control, and laboratory use.

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

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

Six Months' Rule	Report on Voting	Two Months' Procedure	Report on Voting
66E(CO)4	66E(CO)6	66E(CO)7	66E(CO)8

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

Annexes A, B, C, D, E, F and G are normative and annexes H, J, K, L and M are informative.

In this standard, the following print types are used:

- requirements and definitions: in roman type;
- NOTES: in smaller roman type;
- *compliance: in italic type;*
- terms used throughout this standard which have been defined in clause 3: SMALL ROMAN CAPITALS.

INTRODUCTION

After many years of discussion and aware of the need for a General Standard for the safety of electrical equipment for measurement, control, and laboratory use, the majority of National Committees voted in 1988 in favour of the publication of IEC 1010-1.

This Part 1 specifies the safety requirements that are generally applicable to all equipment within its scope. For certain types of equipment, these requirements will be supplemented or modified by the special requirements of a Particular Standard which must be read in conjunction with Part 1 requirements.

Particular standards are under consideration for the following types of equipment or conditions of use:

- probes;
- laboratory centrifuges;
- laboratory heating equipment;
- laboratory flame and arc photometers, and ionizing equipment;
- laboratory sterilisers;
- laboratory mixing, crushing and shaking equipment;
- equipment for use in outdoor and harsh indoor conditions.

SAFETY REQUIREMENTS FOR ELECTRICAL EQUIPMENT FOR MEASUREMENT, CONTROL, AND LABORATORY USE

Part 1: General requirements

1 Scope and object

1.1 *Scope*

This International Standard specifies general safety requirements for electrical equipment intended for professional, industrial process, and educational use, including equipment and computing devices for:

- measurement and test;
- control;
- laboratory use;
- accessories intended for use with the above (e.g. sample handling equipment).

This Part 1 of the standard applies to the equipment defined in a) to c) below, when used under the environmental conditions of 1.4.

a) Electrical measurement and test equipment

This is equipment which by electrical means measures, indicates or records one or more electrical or non-electrical quantities, also non-measuring equipment such as signal generators, measurement standards, power supplies, transducers, transmitters, etc.

b) Electrical control equipment

This is equipment which controls one or more output quantities to specific values, with each value determined by manual setting, by local or remote programming, or by one or more input variables.

c) Electrical laboratory equipment

This is equipment which measures, indicates, monitors or analyses substances, or is used to prepare materials.

This equipment may also be used in areas other than laboratories.

1.1.1 *Aspects excluded from scope*

This Part 1 of the standard does not cover:

- reliable function, performance or other properties of the equipment;
- servicing (repair);
- protection of servicing (repair) personnel.

NOTE - Servicing personnel are expected to be reasonably careful in dealing with obvious hazards, but the design should protect against mishap by the use of warning labels, shields for hazardous voltage terminals, segregation of low-voltage circuits from hazardous voltages, etc. More important, servicing personnel should be trained against unexpected hazards.