BRITISH STANDARD

BS EN 61010-1:2001
IEC 61010-1: 2001
Incorporating Corrigenda Nos. 1 and 2

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

Part 1: General requirements

The European Standard EN 61010-1:2001 has the status of a British Standard

ICS 19.080

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BSI British Standards

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This British Standard, having been prepared under the direction of the Electrotechnical Sector Committee, was published under the authority of the Standards Committee and comes into effect on 15 June 2001

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English version

Safety requirements for electrical equipment for measurement, control, and laboratory use
Part 1: General requirements
(IEC 61010-1:2001)

Règles de sécurité pour appareils électriques de mesurage, de régulation et de laboratoire
Partie 1: Prescriptions générales
(CEI 61010-1:2001)

Sicherheitsbestimmungen für elektrische Meß-, Steuer-, Regel- und Laborgeräte
Teil 1: Allgemeine Anforderungen
(IEC 61010-1:2001)

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

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Foreword

The text of document 66/233/FDIS, future edition 2 of IEC 61010-1, prepared by IEC TC 66, Safety of measuring, control, and laboratory equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61010-1 on 2001-01-01.

This European Standard supersedes EN 61010-1:1993 and its amendment A2:1995.

However, EN 61010-1:1993, with its amendment A2:1995, remains current for any part 2 first edition standard which has not been superseded by a part 2 second edition standard and which refers to EN 61010-1:1993.

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)	2001-11-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2004-01-01

Annexes designated "normative" are part of the body of the standard.
In this standard, annexes A to H and ZA are normative.
Annex ZA has been added by CENELEC.

In this standard, the following print types are used:
- requirements and definitions: in roman type;
- NOTES: in smaller roman type;
- *conformity: in italic type;*
- terms used throughout this standard which have been defined in clause 3: SMALL ROMAN CAPITALS.

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Endorsement notice

The text of the International Standard IEC 61010-1:2001 was approved by CENELEC as a European Standard without any modification.

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INTRODUCTION

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 one, or more than one, particular part 2 of the standard which must be read in conjunction with the part 1 requirements.

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

Part 1: General requirements

1 Scope and object

1.1 Scope

1.1.1 Equipment included in scope

This part of IEC 61010 specifies general safety requirements for electrical equipment intended for professional, industrial process, and educational use, any of which may incorporate computing devices, as defined in a) to d) below, when used under the environmental conditions of 1.4.

a) Electrical test and measurement equipment

   This is equipment which by electrical means tests, 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.

   NOTE All indicating and recording electrical measuring instruments (except those excluded in 1.1.2) fall within the scope of IEC 61010 unless they are panel meters designed only for building-in to other equipment. Built-in panel meters are considered to be components and only need to meet the relevant requirements of IEC 61010, or other standards, as part of the equipment into which they are built.

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, and includes in vitro diagnostic (IVD) equipment

   This equipment may also be used in areas other than laboratories, for example self-test IVD equipment may be used in the home.

d) Accessories intended for use with the above (for example, sample handling equipment).

1.1.2 Equipment excluded from scope

This standard does not apply to equipment within the scope of

a) IEC 60065 (Safety requirements for audio, video and similar electronic apparatus);

b) IEC 60204 (Controls for electrical machines);

c) IEC 60335 (Safety of household and similar electrical appliances);

d) IEC 60364 (Electrical installations of buildings);

e) IEC 60439-1 (Low-voltage switchgear and controlgear assemblies);

f) IEC 60521 (Class 0,5; 1 and 2 alternating current watthour meters);

g) IEC 60601 (Medical electrical equipment);

h) IEC 60950 (Safety of information technology equipment including electrical business equipment, except as specified in 1.1.3);

i) IEC 61558 (Power transformers, power supply units and similar).

1.1.3 Computing equipment

This standard applies only to computers, processors, etc. which form part of equipment within the scope of this standard or are designed for use exclusively with the equipment.

NOTE Computing devices and similar equipment within the scope of IEC 60950 and conforming to its requirements are considered to be suitable for use with equipment within the scope of this standard. However, some of the requirements of IEC 60950 for resistance to moisture and liquids are less stringent than those in this standard. If HAZARDS from moisture or liquids could affect equipment that conforms to IEC 60950 and is used with equipment which conforms to this standard, the instructions for use should specify any additional precautions required.

1.2 Object

1.2.1 Aspects included in scope

The purpose of the requirements of this part 1 is to ensure that the design and methods of construction used provide adequate protection for the OPERATOR and the surrounding area against

a) electric shock or burn (see clause 6);

b) mechanical HAZARDS (see clauses 7 and 8);

c) excessive temperature (see clauses 9 and 10);

d) spread of fire from the equipment (see clause 9);

e) effects of fluids and fluid pressure (see clause 11);

f) effects of radiation, including lasers sources, and sonic and ultrasonic pressure (see clause 12);

g) liberated gases, explosion and implosion (see clause 13).

NOTE Attention is drawn to the existence of additional requirements which may be specified by national authorities responsible for the health and safety of labour forces.

1.2.2 Aspects excluded from scope

This standard does not cover

a) reliable function, performance or other properties of the equipment not related to safety;

b) effectiveness of transport packaging;

c) EMC requirements, which are covered by IEC 61326;

d) protective measures for explosive atmospheres (see IEC 60079);

e) servicing (repair);

f) 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 to recognize unexpected HAZARDS and to react accordingly.

1.3 Verification

This standard also specifies methods of verifying, through inspection and type testing, that the equipment meets the requirements of this standard.

NOTE Requirements for ROUTINE TESTs are given in annex F.