



NSAI
Standards

Irish Standard
I.S. EN 61010-031:2015

Safety requirements for electrical equipment
for measurement, control and laboratory use
- Part 031: Safety requirements for hand-held
probe assemblies for electrical measurement
and test

I.S. EN 61010-031:2015

Incorporating amendments/corrigenda/National Annexes issued since publication:

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This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

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EUROPEAN STANDARD

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July 2015

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English Version

**Safety requirements for electrical equipment for measurement,
control and laboratory use - Part 031: Safety requirements for
hand-held probe assemblies for electrical measurement and test
(IEC 61010-031:2015)**

Règles de sécurité pour appareils électriques de mesure,
de régulation et de laboratoire - Partie 031: Exigences de
sécurité pour sondes équipées tenues à la main pour
mesurage et essais électriques
(IEC 61010-031:2015)

Sicherheitsbestimmungen für elektrische Mess-, Steuer-,
Regel- und Laborgeräte - Teil 031:
Sicherheitsbestimmungen für handgehaltenes
Messzubehör zum Messen und Prüfen
(IEC 61010-031:2015)

This European Standard was approved by CENELEC on 2015-07-03. 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 CEN-CENELEC Management Centre or to any CENELEC member.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

EN 61010-031:2015**European foreword**

The text of document 66/569/FDIS, future edition 2 of IEC 61010-031, prepared by IEC/TC 66 "Safety of measuring, control and laboratory equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61010-031:2015.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2016-04-03
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2018-07-03

This document supersedes EN 61010-031:2002.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

Endorsement notice

The text of the International Standard IEC 61010-031:2015 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60065	NOTE	Harmonized as EN 60065.
IEC 60270	NOTE	Harmonized as EN 60270.
IEC 60364-4-44	NOTE	Harmonized as HD 60634-4-44.
IEC 60664-1	NOTE	Harmonized as EN 60664-1.
IEC 60664-3:2003	NOTE	Harmonized as EN 60664-3:2003.
IEC 60664-3:2003/AMD1:2010	NOTE	Harmonized as EN 60664-3:2003/A1:2010.
IEC 60664-4:2005	NOTE	Harmonized as EN 60664-4:2006.
IEC 60990	NOTE	Harmonized as EN 60990.
IEC 61010 (series)	NOTE	Harmonized as EN 61010 (series).
IEC 61032:1997	NOTE	Harmonized as EN 61032:1998.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u> series	<u>Title</u>	<u>EN/HD</u>	<u>Year</u> series
IEC 60027		Letter symbols to be used in electrical technology	EN 60027	
IEC 60529	-	Degrees of protection provided by enclosures (IP Code)	-	-
IEC 61010-1	2010	Safety requirements for electrical equipment for measurement, control and laboratory use -- Part 1: General requirements	EN 61010-1	2010
IEC 61180-1	1992	High-voltage test techniques for low-voltage equipment -- Part 1: Definitions, test and procedure requirements	EN 61180-1	1994
IEC 61180-2	-	High-voltage test techniques for low-voltage equipment -- Part 2: Test equipment	EN 61180-2	-
IEC Guide 104	-	The preparation of safety publications and the use of basic safety publications and group safety publications	-	-
ISO/IEC Guide 51	-	Safety aspects - Guidelines for their inclusion in standards	-	-

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NORME INTERNATIONALE



GROUP SAFETY PUBLICATION
PUBLICATION GROUPEE DE SÉCURITÉ

**Safety requirements for electrical equipment for measurement, control and laboratory use –
Part 031: Safety requirements for hand-held probe assemblies for electrical measurement and test**

**Règles de sécurité pour appareils électriques de mesurage, de régulation et de laboratoire –
Partie 031: Exigences de sécurité pour sondes équipées tenues à la main pour mesurage et essais électriques**



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Edition 2.0 2015-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE



GROUP SAFETY PUBLICATION
PUBLICATION GROUPEE DE SÉCURITÉ

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Part 031: Safety requirements for hand-held probe assemblies for electrical measurement and test**

**Règles de sécurité pour appareils électriques de mesurage, de régulation et de laboratoire –
Partie 031: Exigences de sécurité pour sondes équipées tenues à la main pour mesurage et essais électriques**

INTERNATIONAL
ELECTROTECHNICAL
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 031: Safety requirements for hand-held probe assemblies for electrical measurement and test

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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International Standard IEC 61010-031 has been prepared by IEC technical committee 66: Safety of measuring, control and laboratory equipment.

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

IEC 61010-031 is a stand-alone standard. This second edition cancels and replaces the first edition published in 2002 and Amendment 1:2008. This edition constitutes a technical revision.

This edition includes the following significant changes from the first edition, as well as numerous other changes:

- a) Voltages above the levels of 30 V r.m.s., 42,4 V peak, or 60 V d.c. are deemed to be HAZARDOUS LIVE instead of 33 V r.m.s., 46,7 V peak, or 70 V d.c.

- b) Servicing is now included within the scope.
- c) Extended environmental conditions are included within the scope.
- d) New terms have been defined.
- e) Tests for REASONABLY FORESEEABLE MISUSE have been added, in particular for fuses.
- f) Additional instruction requirements for probe assembly operation have been specified.
- g) Limit values for ACCESSIBLE parts and for measurement of voltage and touch current have been modified.
- h) SPACINGS requirements for mating of CONNECTORS have been modified.
- i) PROBE TIPS and SPRING-LOADED CLIPS requirements have been modified. The PROTECTIVE FINGERGUARD replace the BARRIER with new requirements.
- j) Insulation requirements (6.5) and test procedures (6.6.5) have been rewritten and aligned when relevant with Part 1. Specific requirements have been added for solid insulation and thin-film insulation.
- k) The terminology for MEASUREMENT CATEGORY I has been replaced with the designation “not RATED for measurements within MEASUREMENT CATEGORIES II, III, or IV”.
- l) The flexing/pull test (6.7.4.3) has been partially rewritten.
- m) Surface temperature limits (Clause 10) have been modified to conform to the limits of IEC Guide 117.
- n) Requirements for resistance of PROBE WIRES to mechanical stresses have been added in Clause 12 and a new Annex D.
- o) Requirements have been added regarding the prevention of HAZARD from arc flash and short-circuits for SPRING-LOADED CLIPS.
- p) A new informative Annex E defines the dimension of the 4 mm banana CONNECTORS.

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

FDIS	Report on voting
66/569/FDIS	66/571/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.

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

A list of all parts of the IEC 61010 series, under the general title, *Safety requirements for electrical equipment for measurement, control, and laboratory use*, may be found on the IEC website.

In this standard, the following print types are used:

- requirements and definitions: in roman type;
- NOTES and EXAMPLES: in smaller roman type;
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SAFETY REQUIREMENTS FOR ELECTRICAL EQUIPMENT FOR MEASUREMENT, CONTROL AND LABORATORY USE –

Part 031: Safety requirements for hand-held probe assemblies for electrical measurement and test

1 Scope and object

1.1 Scope

1.1.1 Probe assemblies included in scope

This part of IEC 61010 specifies safety requirements for hand-held and hand-manipulated probe assemblies of the types described below, and their related accessories. These probe assemblies are for direct electrical connection between a part and electrical test and measurement equipment. They may be fixed to the equipment or be detachable accessories for the equipment.

- a) Type A: low-voltage and high-voltage, non-attenuating probe assemblies. Non-attenuating probe assemblies that are **RATED** for direct connection to voltages exceeding 30 V r.m.s., 42,4 V peak, or 60 V d.c., but not exceeding 63 kV. They do not incorporate components which are intended to provide a voltage divider function or a signal conditioning function, but they may contain non-attenuating components such as fuses (see Figure 1.)
- b) Type B: high-voltage attenuating or divider probe assemblies. Attenuating or divider probe assemblies that are **RATED** for direct connection to secondary voltages exceeding 1 kV r.m.s. or 1,5 kV d.c. but not exceeding 63 kV r.m.s. or d.c. The divider function may be carried out wholly within the probe assembly, or partly within the test or measurement equipment to be used with the probe assembly (see Figure 2).
- c) Type C: low-voltage attenuating or divider probe assemblies. Attenuating or divider probe assemblies for direct connection to voltages not exceeding 1 kV r.m.s. or 1,5 kV d.c. The signal conditioning function may be carried out wholly within the probe assembly, or partly within the test or measurement equipment intended to be used with the probe assembly (see Figure 3).
- d) Type D: low-voltage attenuating, non-attenuating or other signal conditioning probe assemblies, that are **RATED** for direct connection only to voltages not exceeding 30 V r.m.s., or 42,4 V peak, or 60 V d.c., and are suitable for currents exceeding 8 A (see Figure 4).

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