



BSI Standards Publication

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

Part 2-030: Particular requirements for equipment
having testing or measuring circuits

National foreword

This British Standard is the UK implementation of EN IEC 61010-2-030:2021+A11:2021. It is derived from IEC 61010-2-030:2017. It supersedes BS EN 61010-2-030:2010, which will be withdrawn on 2 April 2024.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to text carry the number of the amendment. For example, text altered by CENELEC amendment A11 is indicated by A11 A11.

The UK participation in its preparation was entrusted to Technical Committee EPL/66, Safety of measuring, control and laboratory equipment.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Amendments/corrigenda issued since publication

Date

Text affected

English Version

Safety requirements for electrical equipment for measurement,
control, and laboratory use - Part 2-030: Particular requirements
for equipment having testing or measuring circuits
(IEC 61010-2-030:2017)

Exigences de sécurité pour appareils électriques de
mesurage, de régulation et de laboratoire - Partie 2-030:
Exigences particulières pour les appareils équipés de
circuits d'essai ou de mesure
(IEC 61010-2-030:2017)

Sicherheitsbestimmungen für elektrische Mess-, Steuer-,
Regel- und Laborgeräte - Teil 2-030: Besondere
Anforderungen für Geräte mit Prüf- oder Messstromkreis
(IEC 61010-2-030:2017)

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

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European foreword

The text of document 66/613/FDIS, future edition 2 of IEC 61010-2-030, 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 IEC 61010-2-030:2021.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2021-10-02 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2024-04-02 document have to be withdrawn

This document supersedes EN 61010-2-030:2010 and all of its amendments and corrigenda (if any).

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For the relationship with EU Directive(s) see informative Annex ZZ, which is an integral part of EN IEC 61010-2-030:2021/A11:2021.

Endorsement notice

The text of the International Standard IEC 61010-2-030:2017 was approved by CENELEC as a European Standard without any modification.

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

IEC 61010-2-033 NOTE Harmonized as EN 61010-2-033

Foreword to amendment A11

This document (EN IEC 61010-2-030:2021/A11:2021) has been prepared by CLC/TC 66X "Safety of measuring, control, and laboratory equipment".

The following dates are fixed:

- latest date by which this document has (dop) 2021-10-02
to be implemented at national level by
publication of an identical national
standard or by endorsement
- latest date by which the national (dow) 2024-04-02
standards conflicting with this document
have to be withdrawn

This document amends EN IEC 61010-2-030:2021.

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For the relationship with EU Directive(s) see informative Annex ZZ, which is an integral part of this document.

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.

Annex ZA of EN 61010-1:2010/A1:2019 is applicable, with the following addition:

Publication	Year	Title	EN/HD	Year
IEC 61010-2-032	-	Safety requirements for electrical equipment for measurement, control and laboratory use – Part 032: Particular requirements for hand-held and hand-manipulated current sensors for electrical test and measurement	EN 61010-2-032	2012

Annex ZZ (informative)

Relationship between this European standard and the safety objectives of Directive 2014/35/EU [2014 OJ L96] aimed to be covered

This European Standard has been prepared under a Commission's standardization request relating to harmonized standards in the field of the Low Voltage Directive, M/511, to provide one voluntary means of conforming to safety objectives of Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits [2014 OJ L96].

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table ZZ.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding safety objectives of that Directive, and associated EFTA regulations.

Table ZZ.1 — Correspondence between this European standard and Annex I of Directive 2014/35/EU [2014 OJ L96]

Safety objectives of Directive 2014/35/EU (Annex I)	Clause(s) / subclause(s) of this EN	Remarks / Notes
1. General conditions		
1 (a) the essential characteristics, the recognition and observance of which will ensure that electrical equipment will be used safely and in applications for which it was made, shall be marked on the electrical equipment, or, if this is not possible, on an accompanying document	5	
1 (b) the electrical equipment, together with its component parts, shall be made in such a way as to ensure that it can be safely and properly assembled and connected	5.4, 6.6, 6.10, 6.11, 101 Annex F	
1 (c) the electrical equipment shall be so designed and manufactured as to ensure that protection against the hazards set out in points 2 and 3 is ensured, providing that the equipment is used in applications for which it was made and is adequately maintained	5.4, 17 (for hazards not covered by Clauses 6–16) Annex F	See also the details in points 2 and 3

Safety objectives of Directive 2014/35/EU (Annex I)	Clause(s) / subclause(s) of this EN	Remarks / Notes
2. Protection against hazards arising from the electrical equipment Measures of a technical nature shall be laid down in accordance with point 1, in order to ensure that:		
2 (a) persons and domestic animals are adequately protected against the danger of physical injury or other harm which might be caused by direct or indirect contact	4, 6.1 – 6.11, 9.6, 11.6, 14.4, 101 Annex F, Annex K	
2 (b) temperatures, arcs or radiation which would cause a danger, are not produced	4, 9.5, 9.6, 10.1 – 10.5, 12, 101.3.2, 101.4	
2 (c) persons, domestic animals and property are adequately protected against non-electrical dangers caused by the electrical equipment which are revealed by experience	4, 7.2- 7.7, 9, 12.3, 12.5, 12.6, 13.1, 13.2, 16.2, 101.5	
2 (d) the insulation is suitable for foreseeable conditions	4, 6.7 Annex K	
3. Protection against hazards which may be caused by external influences on the electrical equipment Technical measures shall be laid down in accordance with point 1, in order to ensure that the electrical equipment:		
3 (a) meets the expected mechanical requirements in such a way that persons, domestic animals and property are not endangered	4, 7, 8	
3 (b) is resistant to non-mechanical influences in expected environmental conditions, in such a way that persons, domestic animals and property are not endangered	1.4, 4, 6.7.2.2.1, 10.5, 11.6, 14.3, 14.8, 15	
3 (c) does not endanger persons, domestic animals and property in foreseeable conditions of overload	4, 9, 14, 16.1, 101	

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the product(s) falling within the scope of this standard.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SAFETY REQUIREMENTS FOR ELECTRICAL EQUIPMENT
FOR MEASUREMENT, CONTROL, AND LABORATORY USE –****Part 2-030: Particular requirements for equipment
having testing or measuring circuits**

FOREWORD

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International Standard IEC 61010-2-030 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.

This second edition cancels and replaces the first edition published in 2010. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) Reference to IEC 61010-031 for probe assemblies and IEC 61010-032 for current sensors has been added.

- b) Indirect bonding for testing and measuring circuits has been modified, in particular to take into account the duration of current flow versus body current for a.c. and d.c. currents according to IEC TS 60479-1 and IEC TS 60479-2.
- c) CLEARANCE and CREEPAGE DISTANCE for WET LOCATIONS and for measuring circuit TERMINAL exceeding 1 000 V a.c. or d.c have been specified.
- d) The voltage source for testing overvoltage limiting component or circuit may be limited to 400 V.
- e) Requirements against TRANSIENT OVERVOLTAGES for MAINS voltage measuring circuits have been added.
- f) Requirements for measuring circuits from 1 000 V d.c. to 1 500 V d.c. have been added.
- g) The corrigendum has been included in Tables K.102 to K.104.
- h) Requirements for reduction of TRANSIENT OVERVOLTAGES have been modified.
- i) An informative Annex CC about the dimensions of banana TERMINALS has been added.
- j) Flowchart for insulation according to the type of circuit has been added in a new Annex DD.

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

FDIS	Report on voting
66/613/FDIS	66/621/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 Part 2-030 is to be used in conjunction with the latest edition of IEC 61010-1. It was established on the basis of the third edition (2010) of IEC 61010-1, including its amendment 1 (2016).

This Part 2-030 supplements or modifies the corresponding clauses in IEC 61010-1 so as to convert that publication into the IEC standard: *Particular requirements for equipment having testing or measuring circuits*.

Where a particular subclause of Part 1 is not mentioned in this part 2, that subclause applies as far as is reasonable. Where this part states “addition”, “modification”, “replacement”, or “deletion” the relevant requirement, test specification or note in Part 1 should be adapted accordingly.

In this standard:

- a) the following print types are used:
 - requirements: in roman type;
 - NOTES: in small roman type;
 - *conformity and test: in italic type*;
 - terms used throughout this standard which have been defined in Clause 3: SMALL ROMAN CAPITALS;
- b) subclauses, figures, tables and notes which are additional to those in Part 1 are numbered starting from 101. Additional annexes are lettered starting from AA and additional list items are lettered from aa).

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*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

IEC 61010-1 specifies the safety requirements that are generally applicable to all equipment within its scope. For certain types of equipment, the requirements of IEC 61010-1 and its amendment will be supplemented or modified by the special requirements of one, or more than one, particular Part 2 of the standard which are read in conjunction with the Part 1 requirements.

This Part 2-030 specifies the safety requirements for equipment with testing or measuring circuits which are connected for test or measurement purposes to devices or circuits outside the measurement equipment itself.

Part 2-032 specifies the safety requirements for HAND-HELD and hand-manipulated current sensors (see Clause 1 of Part 2-032). Requirements of Part 2-030 have been included in Part 2-032. Equipment within the scopes of Part 2-030 and Part 2-032 are considered to be covered by the requirements of Part 2-032.

Part 2-033 specifies the safety requirements for HAND-HELD MULTIMETERS and other METERS that have a primary purpose of measuring voltage on a live MAINS. Requirements of Part 2-030 have been included in Part 2-033. Parts of equipment within the scopes of Part 2-030 and Part 2-033 are considered to be covered by the requirements of Part 2-033.

Part 2-034 specifies the safety requirements for measurement equipment for insulation resistance and test equipment for electric strength which are connected to units, lines or circuits for test or measurement purposes. Requirements of Part 2-030 have been included in Part 2-034. Equipment within the scopes of Part 2-030 and Part 2-034 are considered to be covered by the requirements of Part 2-034.

However, for equipment within the scope of Part 2-032, Part 2-033 and Part 2-034, the standards are read in conjunction.