



BSI Standards Publication

**Safety requirements for electrical equipment
for measurement, control, and laboratory use —
Particular requirements for equipment intended to
be used in educational establishments by children**

National foreword

This British Standard is the UK implementation of EN IEC 61010-2-130:2021. It is identical to IEC 61010-2-130:2021.

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.

Contractual and legal considerations

This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.

This publication is provided as is, and is to be used at the recipient's own risk.

The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute a contract. Users are responsible for its correct application.

This publication has been prepared under a mandate given to the European Standards Organizations by the European Commission and the European Free Trade Association and is intended to support essential requirements of the EU legislation detailed in the European foreword. Annex ZA/ZZ describes how the publication relates to the legislation.

For the Great Britain market (England, Scotland and Wales), if the UK Government has designated this publication for conformity with UKCA marking legislation and has not amended the essential requirements of that legislation, Annex ZA/ZZ and any references to EU law in the publication should be read in accordance with the designation as applying to UK legislation in the same way as to EU law. Further information on designated standards can be found at www.bsigroup.com/standardsandregulation.

For the Northern Ireland market, UK law will continue to implement relevant EU law subject to periodic confirmation. References to EU legislation are therefore still valid.

More information on legislation can be found at www.gov.uk.

© The British Standards Institution 2021
Published by BSI Standards Limited 2021

ISBN 978 0 580 99234 6

ICS 19.080; 29.100.01

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 June 2021.

Amendments/corrigenda issued since publication

Date	Text affected
------	---------------

English Version

**Safety requirements for electrical equipment for measurement,
control, and laboratory use - Particular requirements for
equipment intended to be used in educational establishments by
children
(IEC 61010-2-130:2021)**

Exigences de sécurité pour appareils électriques de
mesurage, de régulation et de laboratoire - Partie 2-130:
Exigences particulières pour appareils destinés à une
utilisation dans les établissements scolaires par des enfants
(IEC 61010-2-130:2021)

Sicherheitsbestimmungen für elektrische Mess-, Steuer-,
Regel- und Laborgeräte - Teil 2-130: Besondere
Anforderungen an Geräte, die für den Gebrauch in
Bildungseinrichtungen durch Kinder vorgesehen sind
(IEC 61010-2-130:2021)

This European Standard was approved by CENELEC on 2021-04-27. 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.

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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 66/724/FDIS, future edition 1 of IEC 61010-2-130, 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 61010-2-130:2021.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2022-01-27 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2024-04-27 document have to be withdrawn

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

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

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

Endorsement notice

The text of the International Standard IEC 61010-2-130:2021 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 60086-1	NOTE	Harmonized as EN 60086-1
IEC 61010-031	NOTE	Harmonized as EN 61010-031
IEC 61439-1	NOTE	Harmonized as EN 61439-1
IEC 62368-1	NOTE	Harmonized as EN IEC 62368-1
ISO 13857:2019	NOTE	Harmonized as EN ISO 13857:2019 (not modified)

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 Where 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 changes:

Delete the following:

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61010-031	2002	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	EN 61010-031	2002
+ A1	2008		+ A1	2008

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) / sub-clause(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 5.2 5.3 5.4	
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 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 assured, providing that the equipment is used in applications for which it was made and is adequately maintained	5.4 Annex F 17 (for hazards not covered by clauses 6-16) See also the details in points 2 and 3	
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:		

Safety objectives of Directive 2014/35/EU (Annex I)	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
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 Annex D Annex F, Annex K	
2 (b) temperatures, arcs or radiation which would cause a danger, are not produced	4, 4.4.4.2, 6.3.1.b) 2), 6.3.2 b) 2), 9.5, 9.6, 10.1 – 10.5, 12	
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, 4.4, 7.2- 7.7, 9, 12.3, 12.5, 12.6, 13.1, 13.2, 16.2	
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, 14.101, 15	
3 (c) does not endanger persons, domestic animals and property in foreseeable conditions of overload	4, 9, 14, 16.1	

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.

This page deliberately left blank

CONTENTS

FOREWORD.....	3
INTRODUCTION.....	5
1 Scope and object.....	6
2 Normative references	7
3 Terms and definitions	7
4 Tests	7
5 Marking and documentation	8
6 Protection against electric shock	11
7 Protection against mechanical HAZARDS.....	12
8 Resistance to mechanical stresses	17
9 Protection against the spread of fire	17
10 Equipment temperature limits and resistance to heat.....	17
11 Protection against HAZARDS from fluids and solid foreign objects	18
12 Protection against radiation, including laser sources, and against sonic and ultrasonic pressure	18
13 Protection against liberated gases and substances, explosion and implosion	19
14 Components and subassemblies	19
15 Protection by interlocks	20
16 HAZARDS resulting from application	21
17 RISK assessment	21
Annexes	22
Annex B (normative) Standard test probes.....	23
Annex L (informative) Index of defined terms	24
Bibliography.....	25
Figure 101 – Irregular openings	16
Figure 102 – Cylinder for checking the size of small components.....	20
Figure B.101 – Jointed test probe for equipment intended to be used by children	23
Table 1 – Symbols	9
Table 13 – Minimum maintained gaps to prevent crushing for different body parts for adults and PUPIL OPERATORS aged 3 years and above	13
Table 14 – Maximum gaps to prevent access for different body parts for adults and PUPIL OPERATORS aged 14 years and above.....	14
Table 101 – Minimum safety distances to limit access for different body parts for PUPIL OPERATORS aged 3 years to 13 years	15
Table 19 – Surface temperature limits in NORMAL CONDITION.....	18