

STN	Bezpečnostné požiadavky na elektrické zariadenia na meranie, riadenie a laboratórne použitie Časť 031: Bezpečnostné požiadavky na ručné zostavy sond na meranie a skúšanie	STN EN IEC 61010-031 36 2000
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Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 031: Safety requirements for hand-held and hand-manipulated probe assemblies for electrical test and measurement

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 07/23

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English Version

**Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 031: Safety requirements for hand-held and hand-manipulated probe assemblies for electrical test and measurement
(IEC 61010-031:2022)**

Exigences de sécurité pour appareils électriques de mesurage, de régulation et de laboratoire - Partie 031: Exigences de sécurité pour sondes équipées tenues à la main et manipulées pour mesurage et essais électriques
(IEC 61010-031:2022)

Sicherheitsbestimmungen für elektrische Mess-, Steuer-, Regel- und Laborgeräte - Teil 031: Sicherheitsbestimmungen für handgehaltenes und handgeführtes Messzubehör zum elektrischen Messen und Prüfen
(IEC 61010-031:2022)

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

EN IEC 61010-031:2023 (E)**European foreword**

The text of document 66/770/FDIS, future edition 3 of IEC 61010-031:2022, prepared by IEC/TC 66 "Safety of measuring control and laboratory equipment" was submitted to the IEC-CENELEC parallel vote and approved by CEN-CENELEC as EN IEC 61010-031:2023.

The following dates are fixed:

- latest date by which this document has to be (dop) 2023-12-06 implemented at national level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting (dow) 2026-03-06 with this document have to be withdrawn

This document supersedes EN 61010-031:2015 and all of its amendments and corrigenda (if any).

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

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

IEC 60364-4-44:2007	NOTE	Approved as HD 60364-4-442:2012 (modified)
IEC 60664-1:2020	NOTE	Approved as EN IEC 60664-1:2020 (not modified)
IEC 60664-4:2005	NOTE	Approved as EN 60664-4:2006 (not modified)
IEC 60990:2016	NOTE	Approved as EN 60990:2016 (not modified)
IEC 61010-2-030	NOTE	Approved as EN IEC 61010-2-030
IEC 61010-2-032:2019	NOTE	Approved as EN IEC 61010-2-032:2021 (not modified) + A11:2021
IEC 61010-2-033	NOTE	Approved as EN IEC 61010-2-033
IEC 61010-2-034	NOTE	Approved as EN IEC 61010-2-034
IEC 61032:1997	NOTE	Approved as EN 61032:1998 (not modified)
IEC 61557-17	NOTE	Approved as EN IEC 61557-17

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 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>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60027-1 + AMD1 + AMD2	1992 1997 2005	Letters symbols to be used in electrical technology - Part 1: General	EN 60027-1 + A2	2006 2007
IEC 60027-2	2019	Letter symbols to be used in electrical technology - Part 2: Telecommunications and electronics	EN IEC 60027-2	2019
IEC 60027-4	2006	Letter symbols to be used in electrical technology - Part 4: Rotating electric machines	EN 60027-4	2007
IEC 60529 + AMD1 + AMD2	1989 1999 2013	Degrees of protection provided by enclosures (IP Code)	EN 60529 + Corrigendum + A1 + A2 + A2:2013/AC + AC	1991 May 1993 2000 2013 2019-02 2016-12
IEC 61010-1 + AMD1	2010 2016	Safety requirements for electrical equipment for measurement, control and laboratory use - Part 1: General requirements	EN 61010-1 + A1 + A1:2019/AC	2010 2019 2019-04
IEC 61180	2016	High-voltage test techniques for low-voltage equipment - Definitions, test and procedure requirements, test equipment	EN 61180	2016

EN IEC 61010-031:2023 (E)

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	6	This standard only deals with accessories for measuring equipment.
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	6.4	
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	6.4, Annex F 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:		
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	5, 7, 9.1, 9.2, 11, Annex A, Annex D	

EN IEC 61010-031:2023 (E)

Safety objectives of Directive 2014/35/EU (Annex I)	Clause(s) / subclause(s) of this EN	Remarks / Notes
2 (b) temperatures, arcs or radiation which would cause a danger, are not produced	5, 5.5.2, 7.3.1, 7.3.2, 9.2, 10, 12, 13	The products dealt with in this standard are all passive accessories.
2 (c) persons, domestic animals and property are adequately protected against non-electrical dangers caused by the electrical equipment which are revealed by experience	8, 11.2	The products dealt with in this standard are all passive accessories.
2 (d) the insulation is suitable for foreseeable conditions	5, 7.7, 9 Annex D	
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	5, 8, 9.1, 11.2	
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	5, 7.5, 9.2, 10	
3 (c) does not endanger persons, domestic animals and property in foreseeable conditions of overload	5, 9.1, 10, 12, 13	

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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CONTENTS

FOREWORD	7
1 Scope	10
2 Normative references	10
3 Terms and definitions	11
3.1 Parts and accessories	11
3.2 Quantities	12
3.3 Tests	12
3.4 Safety terms	13
3.5 Insulation	14
4 General	15
4.1 Type of probe assemblies	15
4.2 Safety aspects	19
4.2.1 Identified HAZARDS	19
4.2.2 Aspects excluded	19
4.3 Verification	19
4.4 Environmental conditions	20
4.4.1 Normal environmental conditions	20
4.4.2 Extended environmental conditions	20
5 Tests	20
5.1 General	20
5.2 Sequence of tests	21
5.3 Reference test conditions	21
5.3.1 Environmental conditions	21
5.3.2 State of probe assemblies	21
5.3.3 Position of the probe assembly	21
5.3.4 Accessories	21
5.3.5 Covers and removable parts	21
5.3.6 Input and output voltages	22
5.3.7 Controls	22
5.3.8 Connections	22
5.3.9 Short-term or intermittent operation	22
5.4 Testing in SINGLE FAULT CONDITION	22
5.4.1 General	22
5.4.2 Application of fault conditions	22
5.4.3 Duration of tests	23
5.4.4 Conformity after application of fault conditions	23
5.5 Tests in REASONABLY FORESEEABLE MISUSE	23
5.5.1 General	23
5.5.2 Fuses	23
6 Marking and documentation	24
6.1 Marking	24
6.1.1 General	24
6.1.2 Identification	24
6.1.3 Fuses	25
6.1.4 CONNECTORS and operating devices	25
6.1.5 RATING	26

6.2	Warning markings	26
6.3	Durability of markings	26
6.4	Documentation	27
6.4.1	General	27
6.4.2	Probe assembly RATING	27
6.4.3	Probe assembly operation	27
6.4.4	Probe assembly maintenance and service	28
7	Protection against electric shock	28
7.1	General	28
7.2	Determination of ACCESSIBLE parts	29
7.2.1	General	29
7.2.2	Examination	29
7.2.3	Openings for pre-set controls	30
7.3	Limit values for ACCESSIBLE parts	30
7.3.1	General	30
7.3.2	Levels in NORMAL CONDITION	31
7.3.3	Levels in SINGLE FAULT CONDITION	31
7.3.4	Measurement of voltage and touch current	33
7.4	Means of protection against electric shock	36
7.4.1	General	36
7.4.2	CONNECTORS	37
7.4.3	PROBE TIPS	39
7.4.4	Impedance	42
7.4.5	PROTECTIVE IMPEDANCE	42
7.4.6	BASIC INSULATION, SUPPLEMENTARY INSULATION, DOUBLE INSULATION and REINFORCED INSULATION	42
7.5	Insulation requirements	43
7.5.1	The nature of insulation	43
7.5.2	CLEARANCES	43
7.5.3	CREEPAGE DISTANCES	48
7.5.4	Solid insulation for probe assemblies	50
7.6	Procedure for voltage tests	55
7.6.1	General	55
7.6.2	Humidity preconditioning	56
7.6.3	Conduct of tests	56
7.6.4	Test voltages	57
7.6.5	Test procedures	59
7.7	Constructional requirements for protection against electric shock	60
7.7.1	General	60
7.7.2	Insulating materials	60
7.7.3	ENCLOSURES of probe assemblies with DOUBLE INSULATION or REINFORCED INSULATION	60
7.7.4	PROBE WIRE attachment	61
8	Protection against mechanical HAZARDS	64
9	Resistance to mechanical stresses	64
9.1	General	64
9.2	Rigidity test	65
9.3	Drop test	65
9.4	Impact swing test	65

10	Temperature limits.....	66
11	Protection against HAZARDS from fluids	67
11.1	Cleaning	67
11.2	Specially protected probe assemblies	67
12	Components	67
12.1	General.....	67
12.2	Fuses.....	67
12.3	PROBE WIRE.....	68
12.3.1	General	68
12.3.2	RATING of PROBE WIRE	68
12.3.3	Pressure test at high temperature for insulations	68
12.3.4	Tests for resistance of insulation to cracking	70
12.3.5	Voltage test.....	70
12.3.6	Tensile test.....	71
13	Prevention of HAZARD from arc flash and short-circuits.....	73
13.1	General.....	73
13.2	Exposed conductive parts	73
Annex A	(normative) Measuring circuits for touch current (see 7.3).....	74
A.1	Measuring circuits for AC with frequencies up to 1 MHz and for DC	74
A.2	Measuring circuits for AC with sinusoidal frequencies up to 100 Hz and for DC.....	74
A.3	Current measuring circuit for electrical burns at frequencies above 100 kHz	75
A.4	Current measuring circuit for WET LOCATIONS.....	76
Annex B	(normative) Standard test fingers	78
Annex C	(normative) Measurement of CLEARANCES and CREEPAGE DISTANCES.....	81
Annex D	(normative) Routine spark tests on PROBE WIRE.....	83
D.1	General.....	83
D.2	Spark test procedure.....	83
D.3	Routine spark test method for PROBE WIRE	85
Annex E	(informative) 4 mm CONNECTORS	87
E.1	General.....	87
E.2	Dimensions.....	87
Annex F	(normative) MEASUREMENT CATEGORIES	89
F.1	General.....	89
F.2	MEASUREMENT CATEGORIES	89
F.2.1	MEASUREMENT CATEGORY II	89
F.2.2	MEASUREMENT CATEGORY III.....	89
F.2.3	MEASUREMENT CATEGORY IV	89
F.2.4	Probe assemblies without a MEASUREMENT CATEGORY RATING.....	90
Annex G	(informative) Determination of CLEARANCES for Table 2	92
Annex H	(informative) Line-to-neutral voltages for common mains supply systems	93
Annex I	(informative) Index of defined terms	95
Bibliography	97
Figure 1	– Example of a STACKABLE CONNECTOR with a male CONNECTOR and a female TERMINAL.....	12
Figure 2	– Examples of Type A probe assemblies	16

Figure 3 – Example of Type B probe assemblies.....	17
Figure 4 – Examples of Type D probe assemblies.....	18
Figure 5 – Examples of Type E probe assemblies.....	18
Figure 6 – Examples of Type F probe assemblies.....	19
Figure 7 – Methods for determination of ACCESSIBLE parts.....	30
Figure 8 – Capacitance level versus voltage in NORMAL CONDITION and SINGLE FAULT CONDITION (see 7.3.2 c) and 7.3.3 c).....	32
Figure 9 – Voltage and touch current measurement.....	33
Figure 10 – Voltage and touch current measurement for the REFERENCE CONNECTOR.....	34
Figure 11 – Voltage and touch current measurement with shielded test probe.....	35
Figure 12 – Maximum test probe input voltage for 70 mA touch current.....	36
Figure 13 – Protection by a PROTECTIVE FINGERGUARD.....	40
Figure 14 – Protection by distance.....	40
Figure 15 – Protection by tactile indicator.....	41
Figure 16 – Example of probe assembly with IP2X PROBE TIP.....	41
Figure 17 – Example of recurring peak voltage.....	47
Figure 18 – Distance between conductors on an interface between two layers.....	52
Figure 19 – Distance between adjacent conductors along an interface of two layers.....	53
Figure 20 – Distance between adjacent conductors located between the same two layers.....	54
Figure 21 – Flexing test.....	62
Figure 22 – Rotational flexing test.....	64
Figure 23 – Impact swing test.....	66
Figure 24 – Indentation device.....	69
Figure A.1 – Measuring circuit for AC with frequencies up to 1 MHz and for DC.....	74
Figure A.2 – Measuring circuits for AC with sinusoidal frequencies up to 100 Hz and for DC.....	75
Figure A.3 – Current measuring circuit for electrical burns.....	76
Figure A.4 – Current measuring circuit for high frequency test probes.....	76
Figure A.5 – Current measuring circuit for WET LOCATIONS.....	77
Figure B.1 – Rigid test finger.....	78
Figure B.2 – Jointed test finger.....	79
Figure D.1 – Bead chain configuration (if applicable).....	84
Figure E.1 – Recommended dimensions of 4 mm CONNECTORS.....	88
Figure F.1 – Example to identify the locations of MEASUREMENT CATEGORIES.....	90
Table 1 – Symbols.....	25
Table 2 – CLEARANCES for unmated CONNECTORS.....	38
Table 3 – Multiplication factors for CLEARANCES of probe assembly RATED for operation at altitudes up to 5 000 m.....	44
Table 4 – CLEARANCES for probe assemblies RATED for MEASUREMENT CATEGORIES.....	44
Table 5 – CLEARANCE values for the calculation of 7.5.2.3.2.....	46
Table 6 – CLEARANCES for BASIC INSULATION in probe assemblies subjected to recurring peak voltages or WORKING VOLTAGES with frequencies above 30 kHz.....	48
Table 7 – CREEPAGE DISTANCES for BASIC INSULATION or SUPPLEMENTARY INSULATION.....	49

Table 8 – Impulse test voltages for testing electric strength of solid insulation for probe assemblies RATED for MEASUREMENT CATEGORIES	51
Table 9 – AC test voltages for testing electric strength of solid insulation for probe assemblies RATED for MEASUREMENT CATEGORIES	51
Table 10 – Minimum values for distance or thickness of solid insulation for probe assemblies RATED for MEASUREMENT CATEGORIES	53
Table 11 – Test voltages based on CLEARANCES	58
Table 12 – Correction factors according to test site altitude for test voltages for CLEARANCES	59
Table 13 – Pull forces for PROBE WIRE attachment tests	63
Table 14 – Surface temperature limits in NORMAL CONDITION	66
Table 15 – Diameter of mandrel and numbers of turns	70
Table C.1 – Dimension of X	81
Table C.2 – Methods of measuring CLEARANCES and CREEPAGE DISTANCES	81
Table D.1 – Maximum centre-to-centre spacings of bead chains	83
Table D.2 – Formula for maximum speed of wire in terms of electrode length L of link- or bead-chain electrode	85
Table F.1 – Characteristics of MEASUREMENT CATEGORIES	91
Table G.1 – CLEARANCES values for Table 2	92
Table H.1 – Line-to-neutral voltages for common mains supply systems	94

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SAFETY REQUIREMENTS FOR ELECTRICAL EQUIPMENT
FOR MEASUREMENT, CONTROL, AND LABORATORY USE –****Part 031: Safety requirements for hand-held and hand-manipulated
probe assemblies for electrical test and measurement**

FOREWORD

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

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

This third edition cancels and replaces the second edition published in 2015, and Amendment 1:2018. IEC 61010-031 is a stand-alone standard.

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

- a) the scope has been made succinct. General information from the scope of Edition 2 has been moved to a new Clause 4. Consequently, Clause 4 to Clause 8 of Edition 2 have been renumbered. Clause 9 of Edition 2 has been deleted;

- b) in Clause 2, normative references have been dated and new normative references have been added;
- c) in 3.1.4, the definition of PROBE TIP has been modified;
- d) in 4.1, there is no longer any differentiation between high voltage and low voltage probe assemblies. Type C probe assemblies have been merged with Type B probe assemblies;
- e) in 4.1 d) "Kelvin" probes have been added to the list of probe assemblies as a new Type E and a new Figure 5;
- f) in 4.1 e), probes for voltage measurement without electrical connection to conductors have been added to the list of probe assemblies as a new Type F and a new Figure 6;
- g) in 4.2.1, spread of fire is no longer considered as a HAZARD;
- h) Subclause 4.4.2.5 from Edition 2 has been deleted;
- i) Subclause 4.4.4.3 from Edition 2 has been deleted;
- j) in 5.4.4.1 consideration has been given to SPACINGS and impedance;
- k) in 6.1.1, removable parts of PROBE TIPS which bear markings are allowed;
- l) in 6.1.5, the voltage to be marked for MEASUREMENT CATEGORIES is the AC line-to-neutral or DC voltage;
- m) in 7.4.2, requirements for unmated CONNECTORS have been modified as follows:
 - 1) Table 2 has been modified and expanded,
 - 2) a calculation method for CLEARANCES of CONNECTORS above 20 kV has been defined,
 - 3) CREEPAGE DISTANCES have been aligned with CLEARANCES;
- n) in 7.4.3.1 and 7.4.3.5, requirements for IP2X PROBE TIPS with retractable sleeve have been added;
- o) in 7.4.3.2, PROBE TIPS are now applicable to non-contact probe assemblies;
- p) in 7.5.2.3.2, the values of Table 5 have been modified;
- q) in 7.6.2, voltage tests of CLEARANCES are done without humidity preconditioning;
- r) pre-treatments for rigidity test from Clause 10 of Edition 2 have been moved to 9.2;
- s) Subclause 11.1 of Edition 2 has been deleted;
- t) addition of an exception for Type E probe assembly in 13.2. Removable parts of PROBE TIPS which bear markings are allowed;
- u) Figure F.1 has been modified;
- v) Annex G has been added, for determination of CLEARANCES for Table 2;
- w) Annex H has been added, covering line-to-neutral voltages for common mains supply systems.

The text of this International Standard is based on the following documents:

Draft	Report on voting
66/770/FDIS	66/771/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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

In this document the following print types are used:

- requirements and definitions: in roman type;
- NOTES and EXAMPLES: in smaller roman type;
- *conformity and tests: in italic type;*
- terms used throughout this document which have been defined in Clause 3: SMALL ROMAN CAPITALS.

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

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

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

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

1 Scope

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

This group safety publication focusing on safety essential requirements is primarily intended to be used as a product safety standard for the products mentioned in the scope, but is also intended to be used by technical committees in the preparation of publications for products similar to those mentioned in the scope of this group safety publication, in accordance with the principles laid down in IEC Guide 104 and ISO/IEC Guide 51.

One of the responsibilities of a technical committee is, wherever applicable, to make use of basic safety publications and/or group safety publications in the preparation of its publications.

2 Normative references

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.

IEC 60027-1:1992, *Letter symbols to be used in electrical technology – Part 1: General*
IEC 60027-1:1992/AMD1:1997
IEC 60027-1:1992/AMD2:2005

IEC 60027-2:2019, *Letter symbols to be used in electrical technology – Part 2: Telecommunications and electronics*

IEC 60027-4:2006, *Letter symbols to be used in electrical technology – Part 4: Rotating electric machines*

IEC 60529:1989, *Degrees of protection provided by enclosures (IP Code)*
IEC 60529:1989/AMD1:1999
IEC 60529:1989/AMD2:2013

IEC 61010-1:2010, *Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements*
IEC 61010-1:2010/AMD1:2016

IEC 61180:2016, *High-voltage test techniques for low-voltage equipment – Definitions, test and procedure requirements, test equipment*

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