SLOVENSKI STANDARD
oSIST prEN IEC 61010-2-034:2026

01-maj-2026

Varnostne zahteve za električno opremo za meritve, nadzor in laboratorijsko uporabo - 2-034. del: Posebne zahteve za merilno opremo za izolacijsko upornost in preskusno opremo za električno trdnost

Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-034: Particular requirements for measurement equipment for insulation resistance and test equipment for electric strength

Sicherheitsbestimmungen für elektrische Mess-, Steuer-, Regel- und Laborgeräte - Teil 2 -034: Besondere Anforderungen für Prüf- und Messgeräte zur Isolationswiderstandsmessung und Prüfausrüstung für die Spannungsfestigkeit

Exigences de sécurité pour appareils électriques de mesurage, de régulation et de laboratoire - Partie 2-034: Exigences particulières applicables aux appareils de mesure de la résistance d'isolement et aux appareils d'essai de rigidité diélectrique

Ta slovenski standard je istoveten z: **prEN IEC 61010-2-034:2026**

ICS:

19.080	Električno in elektronsko preskušanje	Electrical and electronic testing
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oSIST prEN IEC 61010-2-034:2026 **en,fr,de**

66/875/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER: **IEC 61010-2-034 ED3**	
DATE OF CIRCULATION: **2026-03-13**	CLOSING DATE FOR VOTING: **2026-06-05**
SUPERSEDES DOCUMENTS: **66/867/CD, 66/872/CC**	

IEC TC 66 : SAFETY OF MEASURING, CONTROL AND LABORATORY EQUIPMENT	
SECRETARIAT: United Kingdom	SECRETARY: Ms Stephanie Lavy
OF INTEREST TO THE FOLLOWING COMMITTEES: TC 42,TC 85	HORIZONTAL FUNCTION(S): TC 66 Horizontal Group Safety
ASPECTS CONCERNED: Safety	
☒ SUBMITTED FOR CENELEC PARALLEL VOTING	☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING

Attention IEC-CENELEC parallel voting

The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting.

The CENELEC members are invited to vote through the CENELEC online voting system.

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Recipients of this document are invited to submit, with their comments, notification of any relevant "In Some Countries" clauses to be included should this proposal proceed. Recipients are reminded that the CDV stage is the final stage for submitting ISC clauses. (SEE AC/22/2007 OR NEW GUIDANCE DOC).

TITLE:

Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-034: Particular requirements for measurement equipment for insulation resistance and test equipment for electric strength

PROPOSED STABILITY DATE: 2031

NOTE FROM TC/SC OFFICERS:

Please note: We kindly ask NCs to submit their comments by 2026-05-29, as the WG has a planned meeting on June 4th and 5th, 2026.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 2-034: Particular requirements for measurement equipment for insulation resistance and test equipment for electric strength

FOREWORD

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IEC 61010-2-034 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 2023. This edition constitutes a technical revision.

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

a) Introduction has been reorganized;
b) IEC 61010-2-130 is used in conjunction with this document for equipment in both scopes;
c) impact of amendment 2 to IEC 61010-1:2010+A1:2016 has been taken into consideration:
    1) Clause 2 and Bibliography have been updated;

2) MAINS definition has been modified;

3) in 4.3.2.5, specific requirements for power supply have been deleted since Amendment 2 of IEC 61010-1 take them now into account;

4) Figure 101 has been replaced by Figure 3;

5) modifications of 6.8.3.1 and 6.8.3.2 have been deleted since Amendment 2 of IEC 61010 1 take them now into account;

6) conformity statements of K.3.2 and K.101.2 have been modified;

7) a few conformity statements for constructional requirements of solid insulation have been modified;

d) definition of MEASUREMENT CATEGORY has been modified, added a definition for MEASURING CIRCUITS and HIGH INTEGRITY component (see also 14.102);

e) added a new 3.101 for abbreviated terms and a Table 101;

f) in 4.4.2.101, requirements for surge protective components have been modified;

g) in 5.1.5.101.2, markings of TERMINALS for MEASUREMENT CATEGORIES have been completed, including the nature of the voltage AC or DC only which is now explicitly permissible;

h) 5.101 has been moved to 6.102 as this subclause is relevant to prevention of electric shock;

i) 6.5.2.101 has been deleted;

j) 6.5.5 has been modified to take into account the automatic disconnection of HAZARDOUS LIVE voltage source;

k) 6.5.6 has been modified to take into account voltage-limiting devices used in MEASURING CIRCUITS;

l) A note has been added to 6.7.1.3 for guidance about long-term for CREEPAGE DISTANCES;

m) 6.101.3 has been completed and moved to 16.4;

n) 6.102 has been moved to 16.102;

o) subclause 9.1 has been modified;

p) 9.101.1 and 9.101.2.1 have been redrafted for clarification, in particular to take into account the recommendations of new Annex N about REASONABLY FORESEEABLE MISUSE;

q) a new 9.101.4 for protection of current MEASURING CIRCUITS has been added;

r) conformity statement of 9.101.6 has been modified;

s) requirements for SPD have been added to 14.8;

t) requirements for capacitors have been added to 14.9;

u) requirements for HIGH INTEGRITY components have been added in a new 14.102;

v) Clause 101 has been deleted; its requirements moved to Clause 9 and Clause 16;

w) a new 16.103 for residual current stored in the unit under tests has been added;

x) installation limit of CAT IV has been modified in Figure AA.1;

y) a new Annex BB for MEASURING CIRCUIT has been added; other annexes have been renumbered;

z) a new informative Annex GG describing the effects of capacitors and inductors discharge current has been added.

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

Draft	Report on voting
66/xxx/FDIS	66/xxx/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, under the general title *Safety requirements for electrical equipment for measurement, control, and laboratory use*, can be found on the IEC website.

This document is to be used in conjunction with IEC 61010-1:2010, IEC 61010-1:2010/AMD1:2016 and IEC 61010-1:2010/AMD2:—[1].

This document supplements or modifies the corresponding clauses in IEC 61010-1 so as to convert that publication into the IEC standard: *Particular requirements for measurement equipment for insulation resistance and test equipment for electric strength.*

Where a particular subclause of IEC 61010-1 is not mentioned in this document, that subclause applies as far as is reasonable. Where this document states "addition", "modification", "replacement", or "deletion", the relevant requirement, test specification or note in IEC 61010-1 should be adapted accordingly.

In this standard:

- the following print types are used:
  - requirements: in roman type;
  - NOTES: in small roman type;
  - *conformity and tests: in italic type;*
  - terms used throughout this standard which have been defined in Clause 3: SMALL ROMAN CAPITALS;
- subclauses, figures, tables and notes which are additional to those in IEC 61010-1 are numbered starting from 101. Additional annexes are lettered starting from AA and additional list items are lettered from aa).

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.

IMPORTANT – The "colour inside" logo on the cover page of this document 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.

[1] Second amendment under preparation. Stage at the time of publication: IEC FDIS 61010-1/AMD2:2026.

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 amendments will be supplemented or modified by the special requirements of one or more standard from the IEC 61010-2 series which is/are read in conjunction with the requirements of IEC 61010-1.

This document and IEC 61010-2-030, IEC 61010-2-032 and IEC 61010-2-033 specify 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.

According to the type of equipment and combination of functions, several IEC 61010 standards are used in conjunction (see Table 0.1).

Table 0.1 – IEC 61010 standards to be applied in case of combined equipment

Type of equipment (example)	Applicable IEC 61010 standards	Additional standards to be applied in case of combined equipment with additional features or equipment designed for specific use					
		Hand-held current sensing	Multimeter function	Insulation resistance test or measurement function	Other measuring and test functions	Hand-held and hand-manipulated probe	Equipment used in educational establishment by pupil OPERATORS
Hand-held and hand-manipulated current sensors	Part 1 + Part 2-032	Function included in the scope	Part 2-033 is included	Part 2-034 is used in conjunction	Other functions are included	Part 031 applies to relevant accessories	Part 2-130 is used in conjunction
Hand-held multimeters and other meters for measuring mains voltage	Part 1 + Part 2-033	Part 2-032 supersedes	Function included in the scope	Part 2-034 is used in conjunction	It depends		
Insulation resistance and test equipment for electric strength	Part 1 + Part 2-034	Part 2-032 is used in conjunction	Not apply	Function included in the scope	Other functions are included		
Other equipment having testing or measuring circuits	Part 1 + Part 2-030	Part 2-032 is used in conjunction	It depends	Part 2-034 supersedes	Functions included in the scope		

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

Part 2-034: Particular requirements for measurement equipment for insulation resistance and test equipment for electric strength

All Clauses and their subclauses, all Annexes, their Clauses and subclauses, and Bibliography of IEC 61010-1:2010, IEC 61010-1:2010/AMD1:2016 and IEC 61010-1:2010/AMD2:—[2] apply except as follows.

1.1.1 Equipment included in scope

Replace the existing text of 1.1.1 with the following new text:

This part of IEC 61010 specifies safety requirements for equipment for measuring insulation resistance and for equipment for testing electric strength which have an output voltage exceeding 50 V AC or 120 V DC.

This document also applies to combined measuring equipment which has an insulation resistance measurement function or an electric strength test measurement function.

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 document, 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.

1.1.2 Equipment excluded from scope

Add the following two new items after item h) of the list of 1.1.2:

aa) IEC 61557-8 (Electrical safety in low voltage distribution systems up to 1 000 V a.c. and 1 500 V d.c. – Equipment for testing, measuring or monitoring of protective measures – Part 8: Insulation monitoring devices for IT systems);

bb) IEC 61557-9 (Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC – Equipment for testing, measuring or monitoring of protective measures – Part 9: Equipment for insulation fault location in IT systems).

[2] Second amendment under preparation. Stage at the time of publication: IEC FDIS 61010-1/AMD2:2026.

1.2.1 Aspects included in scope

Replace item c) and item h) from the list of the second paragraph of 1.2.1 with the following new item c) and item h):

c) spread of fire or arc flash from the equipment (see Clause 9);

h) HAZARDS related to the use and REASONABLY FORESEEABLE MISUSE of the equipment (see Clause 16 and Annex BB).

Insert the following new paragraph between the third paragraph and the NOTE of 1.2.1:

Annex BB and Annex CC provide guidance to equipment manufacturers on HAZARDS that should be considered for equipment intended for performing tests and measurements on hazardous conductors, including MAINS conductors and telecommunication network conductors.

1.2.2 Aspects excluded from scope

Add a new item aa) after item h) of the list of 1.2.2:

aa) HAZARDS related to the use by pupil OPERATORS in educational establishments (see IEC 61010-2-130).

2 Normative references

Insert the following five new normative references in Clause 2:

IEC 60364-4-44:2024, *Low-voltage electrical installations – Part 4-44: Protection for safety – Protection against voltage disturbances and electromagnetic disturbances*

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 61010-1:2010/AMD2:—[3]

IEC 61010-2-032:—[4], *Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 2-032: Particular requirements for hand-held and hand-manipulated current sensors for electrical test and measurement*

IEC 61010-031:2022, *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*

Replace the existing title of Clause 3 with the following new title:

[3] Second amendment under preparation. Stage at the time of publication: IEC FDIS 61010-1/AMD2:2026.

[4] Sixth edition under preparation. Stage at the time of publication: IEC CDV 61010-2-032:2026.

3 Terms, definitions and abbreviated terms

Add the following new term and definition after 3.2.5:

3.2.101
MEASURING CIRCUIT
testing or measuring circuit (internal to the equipment) which is connected for test or measurement purposes to devices or circuits outside the equipment itself

Replace the definition of 3.5.4 with the following new definition:

3.5.4
MAINS
AC or DC electrical power distribution system (external to the equipment)

NOTE 1 to entry: MAINS include public or private electrical utilities and, unless otherwise specified in this document, equivalent sources such as motor-driven generators and uninterruptible power supplies.

NOTE 2 to entry: This definition differs from the IEC 61010-1:2010/AMD2:— definition by allowing voltages greater than 1 000 V AC and 1 500 V DC and MAINS can be used to power the equipment or be measured.

Add the following two new terms and definitions after 3.5.24:

3.5.101
HIGH INTEGRITY
providing a degree of protection against HAZARDS equivalent to two levels of protection

NOTE 1 to entry: A HIGH INTEGRITY part is considered as not subject to failure when tests under fault conditions are made.

NOTE 2 to entry: See reinforced protection defined in IEC 60050-903:2013, 903-02-08.

3.5.102
MEASUREMENT CATEGORY
numeral defining MEASURING CIRCUITS according to the type of MAINS to which they are intended to be connected

Add the new following 3.101 and a new Table 101 after 3.6:

3.101 Abbreviated terms

The list of abbreviated terms and symbols used in this document is given in Table 101:

Table 101 – Abbreviated terms

Abbreviated term or symbol	Term	Note
AC	alternating current	Pertaining to alternating electric quantities such as voltage or current, to devices operated with these, or to quantities associated with these devices (IEC 60050-151:2001, 151-15-01, modified).
DC	direct current	Pertaining to time-independent electric quantities such as voltage or current, to devices operated with direct voltage and current, or to quantities associated with these devices (IEC 60050-151:2001, 151-15-02, modified).
RMS	root-mean-square	For a time-dependent quantity, positive square root of the mean value of the square of the quantity taken over a given time interval (IEC 60050-103:2009/AMD1:2017, 103-02-03, modified).
SPD	surge protective device	Surge protective devices connected to low-voltage power systems described in IEC 61643-11.
SPC	surge protective component	Components for low-voltage surge protective devices (SPD) described in IEC 61643 series such as IEC 61643-311, IEC 61643-331, IEC 61643-341.
B	BASIC INSULATION or SUPPLEMENTARY INSULATION	BASIC INSULATION or SUPPLEMENTARY INSULATION is required or allowed.
D	DOUBLE INSULATION or REINFORCED INSULATION	DOUBLE INSULATION or REINFORCED INSULATION is required or allowed.
OVC	OVERVOLTAGE CATEGORY	"OVC" precedes the OVERVOLTAGE CATEGORY numeral.
CAT	MEASUREMENT CATEGORY	"CAT" precedes the MEASUREMENT CATEGORY numeral.
D_1	CLEARANCE for TRANSIENT OVERVOLTAGE	D_1 is the CLEARANCE that would be applicable to a TRANSIENT OVERVOLTAGE with the shape of a 1,2 × 50 µs impulse (see K.3.2).
D_2	CLEARANCE for WORKING VOLTAGE	D_2 is the CLEARANCE that would be applicable to the peak WORKING VOLTAGE without any TRANSIENT OVERVOLTAGE (see K.3.2).
U_m	maximum peak value	U_m is maximum peak value of the WORKING VOLTAGE plus the maximum additional TRANSIENT OVERVOLTAGE (see K.3.2).
I_{ind}	induced current	Current induced through the device under test by capacitive coupling between the line to which the device is connected with overhead high-voltage lines (see 9.101.6).
U_{ind}	induced voltage	Voltage induced on the device under test by capacitive coupling between the line to which the device is connected with overhead high-voltage lines (see 9.101.6).

4.3.2.6 Input and output voltages

Replace the existing title and text of 4.3.2.6 with the following new title and text:

4.3.2.6 Input and output voltages or currents

Input and output voltages or currents, including floating voltages but excluding the electrical supply source (see 4.3.2.5), shall be set to any voltage or current within their RATED range, in normal and reverse polarity if possible.

4.4.2.1 General

Replace the item 2) of the first paragraph of 4.4.2.1 with the following new item 2):

2) Applicable fault conditions specified in 4.4.2.2 to 4.4.2.15 and 4.4.2.101;

Add the following 4.4.2.101 after 4.4.2.15:

4.4.2.101 Surge protective components (SPC)

SPCD used in MAINS CIRCUITS or MEASURING CIRCUITS connected to MAINS shall be short-circuited and open-circuited, only one at a time in turn in any convenient order (see also 14.8).

Add the following 5.1.5.101 after 5.1.5.2:

5.1.5.101 MEASURING CIRCUIT TERMINALS

5.1.5.101.1 General

MEASURING CIRCUIT TERMINALS are usually arranged in pairs or sets. Each pair or set of TERMINALS may have a RATED voltage or a RATED current, or both, within that set, and each individual TERMINAL may have a RATED voltage to earth. For some equipment, the RATED voltage between TERMINALS may be different from the RATED voltage to earth. Markings shall be clear to avoid misunderstanding.

Some MEASURING CIRCUIT TERMINALS for the equipment within the scope of this document also serve as output TERMINALS.

Except as permitted in 5.1.5.101.5:

a) each pair or set of MEASURING CIRCUIT TERMINALS that are intended to be used together shall be marked with the value of the RATED voltage or the RATED current, as applicable; and

b) MEASURING CIRCUIT TERMINALS RATED for MEASUREMENT CATEGORIES shall be marked with the value of the RATED nominal AC RMS line-to-neutral or DC voltage of MAINS as specified in 5.1.5.101.2, and other MEASURING CIRCUIT TERMINALS shall be marked with the value of the RATED voltage to earth; and

c) each individual, pair, or set of MEASURING CIRCUIT TERMINALS shall be marked with the pertinent numeral of the MEASUREMENT CATEGORY as specified in 5.1.5.101.2 or with the symbol 14 of Table 1 as specified in 5.1.5.101.3, if applicable.

Current MEASURING CIRCUIT TERMINALS not intended for connection to the secondary of current transformers without internal protection shall be marked with symbol 14 of Table 1 (see 9.101.4.2).

Markings shall be placed adjacent to the TERMINALS. However, if there is insufficient space (as in multi-input equipment), the marking may be on the RATING plate or scale plate, or the TERMINAL may be marked with symbol 14 of Table 1.

Any set of MEASURING CIRCUIT TERMINALS does not need to be marked with symbol 14 of Table 1 more than once, if it is close to the TERMINALS.

Conformity is checked by inspection and, if applicable, as specified in 5.1.5.101.2, 5.1.5.101.3 and 5.1.5.101.4, taking the exceptions in 5.1.5.101.5 into account.

5.1.5.101.2 MEASURING CIRCUIT TERMINALS RATED for MEASUREMENT CATEGORIES

TERMINALS of MEASURING CIRCUITS RATED for MEASUREMENT CATEGORIES shall be marked with the numeral of the MEASUREMENT CATEGORY and the nominal AC RMS line-to-neutral or DC voltage of the MAINS RATED for the MEASUREMENT CATEGORY.

1) The numeral of the MEASUREMENT CATEGORY markings shall be marked "CAT II", "CAT III" or "CAT IV" as applicable.

2) The nominal AC RMS line-to-neutral or DC voltage of MAINS being measured is the voltage to earth for MEASUREMENT CATEGORIES. It is taken from the following list:

   50 V, 100 V, 150 V, 300 V, 600 V, 1 000 V, 1 500 V, 2 000 V and 3 000 V.

   Marking those TERMINALS with the nature AC or DC of the nominal AC RMS line-to-neutral or DC voltage of the MAINS RATED for the MEASUREMENT CATEGORY only is permissible.

   NOTE CLEARANCES and solid insulation for MEASUREMENT CATEGORIES are RATED for a nominal AC RMS line-to-neutral voltage or a DC voltage of the MAINS. Neutral is considered to be earthed (see K.101.2, K.101.4 and Annex I).

Marking those TERMINALS with more than one numeral of MEASUREMENT CATEGORY and its nominal AC RMS line-to-neutral or DC voltage of MAINS is permissible.

Conformity is checked by inspection.

The nominal AC RMS line-to-neutral or DC voltage of MAINS for the MEASUREMENT CATEGORY is given in the 7th column of Table I.1 from Annex I (Line-to-neutral pertinent to MAINS system type and nominal voltage) for MAINS supply systems up to 1 000 V.

The phase-to-phase voltage on these MAINS supply systems can be higher than the nominal AC RMS line-to-neutral or DC voltage of MAINS for the MEASUREMENT CATEGORY.

EXAMPLE According to Annex I, the nominal voltages of a three-phase four-wire systems with earthed neutral in TT system can be 277 V (L-N)/480 V (L-L) while the line-to-neutral pertinent to MAINS system type (the nominal voltage nominal AC RMS line-to-neutral or DC voltage of MAINS) is 300 V.

The RATED voltage of the TERMINALS of a MEASURING CIRCUIT intended for MAINS voltage measurements shall be equal to or higher than their nominal AC RMS line-to-neutral or DC voltage of the MAINS RATED for the MEASUREMENT CATEGORY.

Conformity is checked by inspection.

5.1.5.101.3 MEASURING CIRCUIT TERMINALS RATED for connection to voltages above the levels of 6.3.1

TERMINALS of MEASURING CIRCUIT TERMINALS RATED for connection to voltages above the levels of 6.3.1, but not RATED for MEASUREMENT CATEGORIES shall be marked with symbol 14 of Table 1 in close proximity to those TERMINALS (see also 5.4.1 bb)).

Conformity is checked by inspection.

5.1.5.101.4 HAZARDOUS LIVE output TERMINALS

Output TERMINALS which can be HAZARDOUS LIVE shall be marked with symbol 12 of Table 1 in close proximity to those TERMINALS.

Conformity is checked by inspection.

5.1.5.101.5 MEASURING CIRCUIT TERMINALS which are permanently connected, dedicated or for non-HAZARDOUS LIVE voltages

MEASURING CIRCUIT TERMINALS do not need to be marked if: