
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 (IEC 61010-2-034:2017)

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 (IEC 61010-2-034:2017)

Sicherheitsbestimmungen für elektrische Mess-, Steuer-, Regel- und Laborgeräte - Teil 2-034: Besondere Anforderungen für Prüf- und Messgeräte zur Isolationswiderstandsmessung und Prüfausrüstung für die Spannungsfestigkeit (IEC 61010-2-034:2017)

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Exigences de sécurité pour appareils électriques de mesure, 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 (IEC 61010-2-034:2017)

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Sicherheitsbestimmungen für elektrische Mess-, Steuer-,
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Anforderungen für Prüf- und Messgeräte zur
Isolationswiderstandsmessung und Prüfausrüstung für die
Spannungsfestigkeit
(IEC 61010-2-034:2017)

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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

EN IEC 61010-2-034:2021 (E)**European foreword**

The text of document 66/614/FDIS, future edition 1 of IEC 61010-2-034, 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 61010-2-034:2021.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2022-03-15 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2024-03-15 document have to be withdrawn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 EN IEC 61010-2-034:2021/A11:2021.

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The text of the International Standard ~~IEC 61010-2-034:2017~~ was approved by CENELEC as a European Standard ~~without any modification~~.
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In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 61010-2-033	NOTE	Harmonized as EN 61010-2-033
IEC 61557-8	NOTE	Harmonized as EN 61557-8
IEC 61557-9	NOTE	Harmonized as EN 61557-9



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

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**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**

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CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope and object.....	7
2 Normative references	7
3 Terms and definitions	8
4 Tests	8
5 Marking, indicators and documentation.....	8
6 Protection against electric shock	11
7 Protection against mechanical HAZARDS.....	19
8 Resistance to mechanical stresses	19
9 Protection against the spread of fire	19
10 Equipment temperature limits and resistance to heat.....	19
11 Protection against HAZARDS from fluids and solid foreign objects	19
12 Protection against radiation, including laser sources, and against sonic and ultrasonic pressure	19
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.....	20
17 RISK assessment	21
101 Measuring circuits.....	21
Annexes	27
Annex K (normative) Insulation requirements not covered by 6.7	27
Annex L (informative) Index of defined terms	34
Annex AA (normative) Measurement categories.....	35
Annex BB (informative) HAZARDS pertaining to measurements performed in certain environments	37
Annex CC (informative) 4 mm “banana” TERMINALS	40
Annex DD (informative) Flowchart for insulation according to the type of circuit.....	42
Bibliography.....	45
Figure 101 – Duration of current flow versus body current for a.c. and d.c. currents.....	13
Figure 102 – Circuit with protective screen	17
Figure 103 – Circuit with DOUBLE INSULATION	18
Figure AA.1 – Example to identify the locations of measuring circuits	36
Figure CC.1 – Recommended dimensions for 4 mm TERMINALS	41
Figure DD.1 – Requirements for CLEARANCE, CREEPAGE DISTANCE and solid insulation.....	44
Table 101 – CLEARANCES and CREEPAGE DISTANCES for measuring circuit TERMINALS with HAZARDOUS LIVE conductive parts up to 1 000 V a.c. or 1 500 V d.c.....	14
Table 102 – Impulse voltages	20
Table K.101 – CLEARANCES for measuring circuits of MEASUREMENT CATEGORIES II, III and IV	28

Table K.102 – Test voltages for testing electric strength of solid insulation in measuring circuits of MEASUREMENT CATEGORY II	29
Table K.103 – Test voltages for testing electric strength of solid insulation in measuring circuits of MEASUREMENT CATEGORY III	30
Table K.104 – Test voltages for testing electric strength of solid insulation in measuring circuits of MEASUREMENT CATEGORY IV	30
Table K.105 – Test voltages for testing long term stress of solid insulation in measuring circuits.....	30
Table K.106 – Maximum TRANSIENT OVERVOLTAGES	33
Table AA.1 – Characteristics of MEASUREMENT CATEGORIES	36

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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

- 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 61010-2-034 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.

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

FDIS	Report on voting
66/614/FDIS	66/622/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 2-034 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 2-034 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 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 2-034 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.

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).

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.

All requirements of Part 2-030 have been included into Part 2-034. Equipment within the scopes of both Part 2-030 and Part 2-034 are considered to be covered by the requirements of Part 2-034.

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

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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

1 Scope and object

This clause of Part 1 is applicable except as follows:

1.1.1 Equipment included in scope

Replacement:

Replace the text with the following:

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

This part of IEC 61010 specifies safety requirements for measurement equipment for insulation resistance and test equipment for electric strength with an output voltage exceeding 50 V a.c. or 120 V d.c.

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

1.1.2 Equipment excluded from scope

Addition:

Add the following new items to the list:

- 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 a.c. and 1 500 V d.c. – Equipment for testing, measuring or monitoring of protective measures – Part 9: Equipment for insulation fault location in IT systems).

2 Normative references

This clause of Part 1 is applicable except as follows:

Replacement:

Replace

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

with the following new reference:

IEC 60364-4-44:2007, *Low-voltage electrical installations – Part 4-44: Protection for safety – Protection against voltage disturbances and electromagnetic disturbances*
IEC 60364-4-44:2007/AMD1:2015

Addition:

Add the following new normative reference:

IEC 61010-2-032, *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.*

3 Terms and definitions

This clause of Part 1 is applicable except as follows:

3.5 Safety terms

Replacement:

Replace the definition of 3.5.4 with the following new definition:

3.5.4 MAINS

low-voltage electricity supply system

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Addition:

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3.5.101

MEASUREMENT CATEGORY

classification of testing and measuring circuits according to the type of MAINS to which they are intended to be connected

Note 1 to entry: MEASUREMENT CATEGORIES take into account OVERVOLTAGE CATEGORIES, short-circuit current levels, the location in the building installation where the test or measurement is to be made, and some forms of energy limitation or transient protection included in the building installation. See Annex AA for more information.

4 Tests

This clause of Part 1 is applicable.

5 Marking and documentation

This clause of Part 1 is applicable except as follows:

Replace the title with the following new title:

5 Marking, indicators and documentation

5.1.5 TERMINALS, connections and operating devices

Addition:

Add the following new subclause:

5.1.5.101 Measuring circuit TERMINALS

5.1.5.101.1 General

Some measuring circuit TERMINALS for the equipment within the scope of this standard also serve as output TERMINALS.

Except as permitted in 5.1.5.101.5:

- a) the value of the RATED voltage to earth of measuring circuit TERMINALS shall be marked, and
- b) the value of the RATED voltage or the RATED current, as applicable, of each pair or set of measuring circuit TERMINALS that are intended to be used together shall be marked, and
- c) the pertinent MEASUREMENT CATEGORY for each individual pair or set of measuring circuit TERMINALS or symbol 14 of Table 1 shall be marked as specified in 5.1.5.101.2 and 5.1.5.101.3, if applicable.

Measuring circuit TERMINALS are usually supplied 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.

Symbol 14 of Table 1 shall be marked if current measuring TERMINALS are not intended for connection to current transformers without internal protection (see 101.2).

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.

For any set of measuring circuit TERMINALS, symbol 14 of Table 1 does not need to be marked 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 II, III or IV

The relevant MEASUREMENT CATEGORY shall be marked for measuring circuit TERMINALS RATED for measurements within MEASUREMENT CATEGORIES II, III or IV. The MEASUREMENT CATEGORY markings shall be “CAT II”, “CAT III” or “CAT IV” as applicable.

Marking more than one type of MEASUREMENT CATEGORY and its RATED voltage to earth is permissible.

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

Symbol 14 of Table 1 shall be marked for measuring circuit TERMINALS RATED for connection to voltages above the levels of 6.3.1, but that are not RATED for measurements within MEASUREMENT CATEGORIES II, III or IV (see also 5.4.1 bb)).

Conformity is checked by inspection.