

OHUTUSNÕUDED ELEKTRILISTELE MÕÕTMIS-,
JUHTIMIS- JA LABORATOORIUMISEADMETELE. OSA
2-030: ERINÕUDED SEADMETELE, MILLEL ON
KATSETUS- JA MÕÕTE-VOOLUAHELAD

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

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN IEC 61010-2-030:2021 sisaldab Euroopa standardi EN IEC 61010-2-030:2021 ingliskeelset teksti.	This Estonian standard EVS-EN IEC 61010-2-030:2021 consists of the English text of the European standard EN IEC 61010-2-030:2021.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 02.04.2021.	Date of Availability of the European standard is 02.04.2021.
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ICS 19.080, 71.040.10

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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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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- latest date by which the national standards conflicting with the (dow) 2024-04-02 document have to be withdrawn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

INTERNATIONAL STANDARD

NORME INTERNATIONALE



GROUP SAFETY PUBLICATION
PUBLICATION GROUPEE DE SÉCURITÉ

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

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

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



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NORME INTERNATIONALE



GROUP SAFETY PUBLICATION
PUBLICATION GROUPEE DE SÉCURITÉ

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

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Partie 2-030: Exigences particulières pour les appareils équipés de circuits d'essai ou de mesure**

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INTERNATIONALE

ICS 19.080; 71.040.10

ISBN 978-2-8322-3791-5

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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

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- withdrawn,
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- amended.

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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.

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

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

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 equipment having testing or measuring circuits which are connected for test or measurement purposes to devices or circuits outside the measurement equipment itself.

These include measuring circuits which are part of electrical test and measurement equipment, laboratory equipment, or process control equipment. The existence of these circuits in equipment requires additional protective means between the circuit and an OPERATOR.

NOTE These testing and measuring circuits can, for example:

- measure voltages in circuits of other equipment,
- measure temperature of a separate device via a thermocouple,
- measure force on a separate device via a strain gauge,
- inject a voltage onto a circuit to analyse a new design.

Equipment having these testing and measuring circuits may be intended for performing tests and measurements on hazardous conductors, including MAINS conductors and telecommunication network conductors. See Annex BB for considerations of HAZARDS involved in various tests and measurements.

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

Addition:

Add the following new definition:

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:

5.1.5 TERMINALS, connections and operating devices

Addition:

Add the following new subclause: