SVENSK STANDARD SS-EN IEC 61010-2-033

Fastställd	Utgåva	Sida	Ansvarig kommitté
2021-12-15	2	1 (1+52)	SEK TK 66

Elektrisk utrustning för mätning, styrning och för laboratorieändamål – Säkerhet – Del 2-033: Särskilda fordringar på multimetrar och andra handhållna instrument, för allmänbruk och yrkesbruk, med möjlighet att mäta nätspänning

Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 2-033: Particular requirements for hand-held multimeters and other meters, for domestic and professional use, capable of measuring mains voltage

Som svensk standard gäller europastandarden EN IEC 61010-2-033:2021. Den svenska standarden innehåller de officiella engelska språkversionerna av EN IEC 61010-2-033:2021 och EN IEC 61010-2-033:2021/A11:2021.

Nationellt förord

Europastandarden EN IEC 61010-2-033:2021

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 61010-2-033, Second edition, 2019 - Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-033: Particular requirements for hand-held multimeters and other meters, for domestic and professional use, capable of measuring mains voltage**

utarbetad inom International Electrotechnical Commission, IEC.

Standarden ska användas tillsammans med SS-EN 61010-1, utgåva 3, 2010 och dess separat utgivna tillägg.

Tidigare fastställd svensk standard SS-EN 61010-2-033, utgåva 1, 2012, gäller ej fr o m 2024-11-12.

ICS 19.080.00; 71.040.10

Denna standard är fastställd av SEK Svensk Elstandard,
som också kan lämna upplysningar om **sakinnehållet** i standarden.
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Det finns många fördelar med att ha gemensamma tekniska regler för bl a mätning, säkerhet och provning och för utförande, skötsel och dokumentation av elprodukter och elanläggningar.

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Stora delar av arbetet sker internationellt

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

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Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 61010-2-033

November 2021

ICS 19.080; 71.040.10

Supersedes EN 61010-2-033:2012 and all of its amendments and corrigenda (if any)

English Version

Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-033: Particular requirements for hand-held multimeters for domestic and professional use, capable of measuring mains voltage (IEC 61010-2-033:2019)

Exigences de sécurité pour appareils électriques de mesurage, de régulation et de laboratoire - Partie 2-033: Exigences particulières pour les multimètres portatifs pour usage domestique et professionnel, capables de mesurer la tension réseau
(IEC 61010-2-033:2019)

Sicherheitsbestimmungen für elektrische Mess-, Steuer-, Regel- und Laborgeräte - Teil 2-033: Besondere Anforderungen an handgehaltene Multimeter und andere handgehaltene Messgeräte für den Haushalt und professionellen Gebrauch, geeignet zur Messung von Netzspannungen
(IEC 61010-2-033:2019)

This European Standard was approved by CENELEC on 2019-07-26. 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

Ref. No. EN IEC 61010-2-033:2021 E

European foreword

The text of document 66/692/FDIS, future edition 2 of IEC 61010-2-033, 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 61010-2-033:2021.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2022-05-12
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024-11-12

This document supersedes EN 61010-2-033:2012 and all of its amendments and corrigenda (if any).

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 Standardization Request given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) / Regulation(s).

For the relationship with EU Directive(s) / Regulation(s), see informative Annex ZZ, which is an integral part of EN IEC 61010-2-033:2021/A11:2021.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 61010-2-033:2019 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 61010-2-034	NOTE	Harmonized as EN IEC 61010-2-034
IEC 61557-1	NOTE	Harmonized as EN 61557-1
IEC 61557-2	NOTE	Harmonized as EN 61557-2
IEC 61557-3	NOTE	Harmonized as EN 61557-3
IEC 61557-4	NOTE	Harmonized as EN 61557-4
IEC 61557-5	NOTE	Harmonized as EN 61557-5
IEC 61557-6	NOTE	Harmonized as EN 61557-6
IEC 61557-7	NOTE	Harmonized as EN 61557-7
IEC 61557-8	NOTE	Harmonized as EN 61557-8

IEC 61557-9	NOTE	Harmonized as EN 61557-9
IEC 61557-10	NOTE	Harmonized as EN 61557-10
IEC 61557-11	NOTE	Harmonized as EN 61557-11
IEC 61557-12	NOTE	Harmonized as EN 61557-12

IEC 61010-2-033

Edition 2.0 2019-06

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Safety requirements for electrical equipment for measurement, control and laboratory use –
Part 2-033: Particular requirements for hand-held multimeters for domestic and professional use, capable of measuring MAINS voltage

Exigences de sécurité pour appareils électriques de mesurage, de régulation et de laboratoire –
Partie 2-033: Exigences particulières pour les multimètres portatifs pour usage domestique et professionnel, capables de mesurer la tension RESEAU

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 2-033: Particular requirements for hand-held multimeters for domestic and professional use, capable of measuring MAINS voltage

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 61010-2-033 has been prepared by IEC technical committee 66: Safety of measuring, control and laboratory equipment.

This second edition cancels and replaces the first edition published in 2012. This edition constitutes a technical revision.

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

a) The scope has been reduced to hand-held multimeters. Voltmeters and clamp multimeters have been removed. They are addressed respectively by IEC 61010-2-030 and IEC 61010-2-032. The relevant definitions have been removed.
b) Subclause 4.4.2.101 has been relocated into Clause 102.

c) CLEARANCES and CREEPAGE DISTANCES for WET LOCATIONS and for measuring circuit TERMINALS exceeding 1 000 V a.c. or 1 414 V d.c. have been specified.

d) Subclause 14.101 related to "Circuits or components used as TRANSIENT OVERVOLTAGE limiting devices in measuring circuits used to measure MAINS" has been removed.

e) References to IEC 61010-031 for probe assemblies and IEC 61010-2-032 for current sensors have been added.

f) Requirements for protection against MAINS overvoltage measuring circuits have been added.

g) Clause 102 has been rewritten.

h) Requirements for measuring circuits from 1 000 V to 3 000 V have been added.

i) An informative Annex CC about dimensions of 4-mm banana TERMINALS has been added.

j) A 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
66/692/FDIS	66/694/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all the parts in 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.

This Part 2-033 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 and its Amendment 1 (2016), hereinafter referred to as Part 1.

This Part 2-033 supplements or modifies the corresponding clauses in IEC 61010-1 so as to convert that publication into the IEC standard: *Particular requirements for hand-held multimeters for domestic and professional use, capable of measuring MAINS voltage.*

Where a particular subclause of Part 1 is not mentioned in this Part 2-033, that subclause applies as far as is reasonable. Where this Part 2-033 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 tests: 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).

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://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 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

Part 2-030 specifies the safety requirements for equipment with testing and measuring circuits which are connected for test or measurement purposes to devices or circuits outside the measurement equipment itself. Requirements of Part 2-030 have been included in this Part 2-033. Equipment within the scopes of both Part 2-030 and Part 2-033 are considered to be covered by the requirements of this Part 2-033.

Part 2-032 specifies the safety requirements for hand-held and hand-manipulated current sensors. For equipment within the scope of Part 2-032 and Part 2-033, only Part 2-032 is applicable.

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. For equipment within the scope of Part 2-033 and Part 2-034, only Part 2-034 is applicable.

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

Part 2-033: Particular requirements for hand-held multimeters for domestic and professional use, capable of measuring MAINS voltage

1 Scope and object

This clause of Part 1 is applicable except as follows:

1.1.1 Equipment included in scope

Replace the existing text with the following:

This part of IEC 61010 specifies safety requirements for hand-held multimeters for domestic and professional use, capable of measuring MAINS.

Hand-held multimeters are multi-range multifunction measuring instruments intended to measure voltage and other electrical quantities such as resistance or current. Their primary purpose is to measure voltage on a live MAINS. They are suitable to be supported by one hand during NORMAL USE.

1.1.2 Equipment excluded from scope

Add the following new item to the list and the following paragraph:

aa) IEC 61557-1 to IEC 61557-12, *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*

HAND-HELD EQUIPMENT such as oscilloscopes, wattmeters, process control multimeters not RATED for measuring voltage on a live MAINS, clamp multimeters and communications test sets are not within the scope of this document.

1.2.1 Aspects included in scope

Add the following two new paragraphs at the end of the subclause:

Requirements for protection against HAZARDS resulting from NORMAL USE and REASONABLY FORESEEABLE MISUSE of measuring circuits are given in Clause 101.

Requirements for reliance on the displayed value are given in Clause 102.

2 Normative references

This clause of Part 1 is applicable except as follows:

Replace "IEC 61010-031" with the following new reference:

IEC 61010-031:2015, *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 61010-031:2015/AMD1:2018

Replace "IEC 61180-1 (all parts)", *"IEC 61180-1" and "IEC 61180-2", with the following new reference:*

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

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*