SVENSK STANDARD

SS-EN IEC 61010-2-201, utg 3:2025

Fastställd	Sida	Ansvarig kommitté
2025-06-04	1 (86)	SEK TK 65

Elektrisk utrustning för mätning, styrning och för laboratorieändamål – Säkerhet – Del 2-201: Särskilda fordringar på styr- och reglerutrustning

Safety requirements for electrical equipment for measurement, control and laboratory use – Part 2-201: Particular requirements for control equipment

Som svensk standard gäller europastandarden EN IEC 61010-2-201:2024. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 61010-2-201:2024.

Nationellt förord

Europastandarden EN IEC 61010-2-201:2024

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 61010-2-201, Third edition, 2024 - Safety requirements for electrical equipment for measurement, control and laboratory use - Part 2-201: Particular requirements for control equipment**

utarbetad inom International Electrotechnical Commission, IEC.

Standarden ska användas tillsammans med IEC 61010-1:2010 och IEC 61010-1:2010/AMD1:2016

Tidigare fastställd svensk standard SS-EN IEC 61010-2-201, utg 2:2018 med eventuella tillägg, ändringar och rättelser gäller ej fr o m 2027-11-30.

ICS 17.020.00; 19.020.00; 25.040.40

Denna standard är fastställd av SEK Svensk Elstandard,
som också kan lämna upplysningar om **sakinnehållet** i standarden.
Postadress: Box 1042, 172 21 Sundbyberg
Telefon: 08 - 444 14 00.
E-post: sek@elstandard.se. Internet: elstandard.se

Standarder underlättar utvecklingen och höjer elsäkerheten

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.

Genom att utforma sådana standarder blir säkerhetsfordringar tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

SEK är Sveriges röst i standardiseringsarbetet inom elområdet

SEK Svensk Elstandard svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

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).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

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.

SEK Svensk Elstandard

Box 1042
172 21 Sundbyberg
Tel 08-444 14 00
elstandard.se

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 61010-2-201

November 2024

ICS 17.020; 19.020; 25.040.40

Supersedes EN IEC 61010-2-201:2018

English Version

Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-201: Particular requirements for control equipment (IEC 61010-2-201:2024)

Exigences de securité pour appareils électriques de mesurage, de régulation et de laboratoire - Partie 2-201: Exigences particulières pour les équipements de commande (IEC 61010-2-201:2024)

Sicherheitsbestimmungen für elektrische Mess-, Steuer-, Regel- und Laborgeräte - Teil 2-201: Besondere Anforderungen für Steuer- und Regelgeräte (IEC 61010-2-201:2024)

This European Standard was approved by CENELEC on 2024-11-28. 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, Türkiye 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 61010-2-201:2024 E

SEK Svensk Elstandard

SS-EN IEC 61010-2-201, utg 3:2025

European foreword

The text of document 65/1049/FDIS, future edition 3 of IEC 61010-2-201, prepared by TC 65 "Industrial-process measurement, control and automation" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61010-2-201:2024.

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) 2025-11-30
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2027-11-30

This document supersedes EN IEC 61010-2-201:2018 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.

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 61010-2-201:2024 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 standard indicated:

IEC 61010-1:2010	NOTE	Approved as EN 61010-1:2010 (not modified)
IEC 61010-1:2010/A1:2016	NOTE	Approved as EN 61010-1:2010/A1:2019
IEC 60364-4-41	NOTE	Approved as HD 60364-4-41
IEC 60664-1	NOTE	Approved as EN IEC 60664-1
IEC 60715	NOTE	Approved as EN 60715
IEC 60721-2-3	NOTE	Approved as EN 60721-2-3
IEC 60947-1:2020	NOTE	Approved as EN IEC 60947-1:2021 (not modified)
IEC 61051-2	NOTE	Approved as EN IEC 61051-2
IEC 61131 series	NOTE	Approved as EN IEC 61131 series
IEC 61131-6	NOTE	Approved as EN 61131-6
IEC 61140:2016	NOTE	Approved as EN 61140:2016 (not modified)
IEC 61643 series	NOTE	Approved as EN IEC 61643 series
IEC 61643-21	NOTE	Approved as EN 61643-21

IEC 61643-311	NOTE	Approved as EN 61643-311
IEC 61643-321	NOTE	Approved as EN 61643-321
IEC 61643-331	NOTE	Approved as EN IEC 61643-331
IEC 61800 series	NOTE	Approved as EN 61800 series
IEC 62133 series	NOTE	Approved as EN 62133 series
IEC 62368 series	NOTE	Approved as EN IEC 62368 series

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 Where 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.cencenelec.eu.

Annex ZA of EN 61010-1:2010 and EN 61010-1:2010/A1:2019 is applicable, except as follows.

Add the following references:

Publication	Year	Title	EN/HD	Year
IEC 60384-14	-	Fixed capacitors for use in electronic equipment - Part 14: Sectional specification - Fixed capacitors for electromagnetic interference suppression and connection to the supply mains	EN IEC 60384-14	-
IEC 60695-2-11	-	Fire hazard testing - Part 2-11: Glowing/hot-wire based test methods - Glow-wire flammability test method for end products (GWEPT)	EN IEC 60695-2-11	-
IEC 60695-11-3	-	Fire hazard testing - Part 11-3: Test flames - 500 W flames - Apparatus and confirmational test methods	EN 60695-11-3	-
IEC 60695-11-20	-	Fire hazard testing - Part 11-20: Test flames - 500 W flame test method	EN 60695-11-20	-
IEC 60947-4-1	-	Low-voltage switchgear and controlgear - Part 4-1: Contactors and motor-starters - Electromechanical contactors and motor-starters	EN IEC 60947-4-1	-
IEC 60947-4-2	-	Low-voltage switchgear and controlgear - Part 4-2: Contactors and motor-starters - Semiconductor motor controllers, starters and soft-starters	EN IEC 60947-4-2	-
IEC 60947-5-1	2016	Low-voltage switchgear and controlgear - Part 5-1: Control circuit devices and switching elements - Electromechanical control circuit devices	EN 60947-5-1	2017

Publication	Year	Title	EN/HD	Year
IEC 61010-1	2010	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements	EN 61010-1	2010
+ A1 (mod)	2016		+ A1	2019
			+ AC	2019-04
IEC 61010-2-030	-	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-030: Particular requirements for equipment having testing or measuring circuits	EN IEC 61010-2-030	-
IEC 61810-1	2015	Electromechanical elementary relays - Part 1: General and safety requirements	EN 61810-1	2015

IEC 61010-2-201

Edition 3.0 2024-10

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Safety requirements for electrical equipment for measurement, control, and laboratory use –
Part 2-201: Particular requirements for control equipment

Exigences de securité pour appareils électriques de mesurage, de régulation et de laboratoire –
Partie 2-201: Exigences particulières pour les équipements de commande

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 17.020, 19.020, 25.040.40

ISBN 978-2-8322-9783-4

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

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

Part 2-201: Particular requirements for control equipment

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.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at https://patents.iec.ch. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 61010-2-201 has been prepared by IEC technical committee 65: Industrial-process measurement, control and automation. It is an International Standard.

This third edition cancels and replaces the second edition published in 2017. This edition constitutes a technical revision.

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

a) 1.1.1: the related equipment included in the Scope has been clarified;
b) 4.3.2.101: the optical fibre module has been deleted;
c) 5.4.3: equipment installation has been clarified;

d) 6.7.1.1: revision of the figure representing insulation between separate circuits has been included;

e) 6.7.101: the subclause relating to insulation for FIELD WIRING TERMINALS of OVERVOLTAGE CATEGORY II with a nominal voltage up to 1 000 V has been deleted;

f) 6.7.1.101: a new subclause relating to insulation for SELV/PELV CIRCUITS has been included;

g) 6.8.3: specification of voltage tester has been added;

h) 6.9.3: an additional exception relating to colour coding has been included;

i) 6.9.101: a new subclause relating to wiring for secondary circuits e.g. SELV/PELV has been included;

j) 8.2.2.101: additional requirements for glass displays have been included;

k) 8.3: the subclause relating to the drop test has been removed;

l) 9.3.2: additional requirements for material of connectors and insulating material have been included;

m) The particular requirements for non-metallic material have been clarified;

n) Clause 11: the particular requirements for protection against HAZARDS from fluid and solid foreign objects have been removed;

o) 12.4: an additional subclause relating to microwave radiation has been included;

p) 14.102: the description of switching devices has been clarified;

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

Draft	Report on voting
65/1049/FDIS	65/1095/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/standardsdev/publications.

A list of all 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 document is to be used in conjunction with IEC 61010-1:2010, and IEC 61010-1:2010/AMD1:2016.

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 control equipment.*

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 document,

a) the following print types are used:
   – requirements and definitions: in roman type;
   – NOTES: 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.

b) 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, or
- revised.

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.

INTRODUCTION

IEC 61010-2-2xx documents are a series of standards on the safety of industrial-process measurement, control and automation equipment.

This document specifies the complete safety related requirements and related tests for control equipment (e.g. programmable controller (PLC), the components of distributed control systems (DCS), I/O devices, human machine interface (HMI)).

Safety terms of general use are defined in IEC 61010-1. More specific terms are defined in each relevant part of the IEC 61010 series.

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

Part 2-201: Particular requirements for control equipment

1 Scope and object

IEC 61010-1:2010, Clause 1 and IEC 61010-1:2010/AMD1:2016, Clause 1 apply, except as follows:

1.1.1 Equipment included in scope

Replacement:

Replace the existing text with the following:

This part of IEC 61010 specifies safety requirements and related verification tests for control equipment or their associated peripherals, or both.

Some equipment examples are:

- programmable logic controller (PLC);
- programmable automation controller (PAC);
- distributed control systems (DCS);
- industrial PC (computers) and panel PC;
- programming and debugging tools (PADTs);
- displays and human-machine interfaces (HMI);
- any product performing the function of control equipment or their associated peripherals, or both;
- positioners; and
- control equipment which have as their intended use the command and control of machines, automated manufacturing and industrial processes, for example discrete and continuous control.

Components of the above named equipment and within the scope of this document are, for example:

- (auxiliary) stand-alone power supplies;
- peripherals such as digital and analogue I/O,
- remote-I/O;
- industrial network equipment, embedded or stand-alone (e.g. switches, routers, wireless base station).

Control equipment and their associated peripherals are intended to be used in an industrial environment. This document considers equipment designed as OPEN or ENCLOSED EQUIPMENT.

NOTE 1 Control equipment intended also for use in other environments or for other purposes (example: for use in building installations to control light or other electrical installations, or for use on cars, trains or ships) can have additional conformity requirements defined by the safety standard(s) for these applications. These requirements can involve for example: insulation, spacings and power restrictions.

NOTE 2 Computing devices and similar equipment within the scope of the IEC 60950 series or the IEC 62368 series and conforming to their requirements are considered to be suitable for use with control equipment within the scope of this document. However, some of the requirements of the IEC 60950 series for resistance to moisture and liquids are less stringent, IEC 61010-1:2010, 5.4.4, second paragraph takes this aspect into account.

Control equipment covered in this document is typically intended for use in OVERVOLTAGE CATEGORY II (IEC 60664-1) in low-voltage installations, where the RATED equipment supply voltage does not exceed 1 000 V a.c. RMS (50/60 Hz), or 1 000 V d.c..

Where control equipment is intended for installation to supply systems with OVERVOLTAGE CATEGORY III or IV, additional requirements are identified in Annex K.

The requirements of ISO/IEC Guide 51 and IEC Guide 104, as they relate to this part of IEC 61010, are incorporated herein.

1.1.2 Equipment excluded from scope

Replacement:

Replace the existing text with the following:

This document does not deal with aspects of the overall automated system, for example a complete assembly line. Control equipment (e.g. DCS and PLC), their application programme and their associated peripherals are considered as components (components in this context are items which perform no useful function by themselves) of an overall automated system.

Since control equipment (e.g. DCS and PLC) are component devices, safety considerations for the overall automated system including installation and application are beyond the scope of this document. Refer to the IEC 60364 series or applicable national and local regulations for electrical installation and guidelines.

1.2.1 Aspects included in scope

Replace the first sentence with the following:

The purpose of the requirements of this document is to ensure that all HAZARDs to the OPERATOR, SERVICE PERSONNEL and the surrounding area are reduced to a tolerable level.

NOTE By using the terms "OPERATOR" and "SERVICE PERSONNEL" this document considers the perception of HAZARDS depending on training and skills. Annex AA provides a general approach in this regard.

1.2.2 Aspects excluded from scope

Replacement:

Replace the existing text with the following:

This document does not cover:

a) reliability, functionality, performance, or other properties of the control equipment not related to safety;
b) mechanical or climatic requirements for operation, transport or storage;
c) EMC requirements (see e.g. the IEC 61326 series or IEC 61131-2);
d) protective measures for explosive atmospheres (see e.g. the IEC 60079 series);
e) functional safety (see e.g. the IEC 61508 series, IEC 61131-6).

2 Normative references

IEC 61010-1:2010, Clause 2 and IEC 61010-1:2010/AMD1:2016, Clause 2 apply, except as follows:

Addition:

Add the following new references:

IEC 60384-14, *Fixed capacitors for use in electronic equipment – Part 14: Sectional specification – Fixed capacitors for electromagnetic interference suppression and connection to the supply mains*

IEC 60695-2-11, *Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end products (GWEPT)*

IEC 60695-11-3, *Fire hazard testing – Part 11-3: Test flames – 500 W flames – Apparatus and confirmational test methods*

IEC 60695-11-20, *Fire hazard testing – Part 11-20: Test flames – 500 W flame test method*

IEC 60947-4-1, *Low-voltage switchgear and controlgear – Part 4-1: Contactors and motor-starters – Electromechanical contactors and motor-starters*

IEC 60947-4-2, *Low-voltage switchgear and controlgear – Part 4-2: Contactors and motor-starters – Semiconductor motor controllers, starters and soft-starters*

IEC 60947-5-1:2016, *Low-voltage switchgear and controlgear – Part 5-1: Control circuit devices and switching elements – Electromechanical control circuit devices*

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 61010-2-030, *Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 2-030: Particular requirements for equipment having testing or measuring circuits*

IEC 61810-1:2015, *Electromechanical elementary relays – Part 1: General and safety requirements*