

SLOVENSKI STANDARD

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01-julij-2013

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SIST EN 61131-2:2007

Varnostne zahteve za električno opremo za meritve, nadzor in laboratorijsko uporabo - 2-201. del: Posebne zahteve za opremo za nadzor in upravljanje (IEC 61010-2-201:2013)

Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-201: Particular requirements for control equipment (IEC 61010-2-201:2013)

iTeh STANDARD PREVIEW

Sicherheitsbestimmungen für elektrische Mess-, Steuer-, Regel- und Laborgeräte - Teil 2-201: Besondere Anforderungen für Steuer- und Regelgeräte (IEC 61010-2-201:2013)

[SIST EN 61010-2-201:2013](#)

Règles de sécurité pour appareils électriques de mesure, de régulation et de laboratoire - Partie 2-201: Exigences particulières relatives aux équipements de commande (CEI 61010-2-201:2013)

Ta slovenski standard je istoveten z: EN 61010-2-201:2013

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NORME EUROPÉENNE
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EN 61010-2-201

May 2013

ICS 13.110; 17.020; 19.020; 25.040.40

Supersedes EN 61131-2:2007 (partially)

English version

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

Part 2-201: Particular requirements for control equipment (IEC 61010-2-201:2013)

Règles de sécurité pour appareils
électriques de mesure, de régulation et
de laboratoire -
Partie 2-201: Exigences particulières pour
les équipements de commande
(CEI 61010-2-201:2013)

Sicherheitsbestimmungen für elektrische
Mess-, Steuer-, Regel- und Laborgeräte -
Teil 2-201: Besondere Anforderungen für
Steuer- und Regelgeräte
(IEC 61010-2-201:2013)

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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.

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 65/515/FDIS, future edition 1 of IEC 61010-2-201, prepared by IEC TC 65 "Industrial-process measurement, control and automation" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61010-2-201:2013.

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) 2014-01-01
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2016-04-01

This document partially supersedes EN 61131-2:2007.

This Part 2-201 is intended to be used in conjunction with EN 61010-1:2010. Consideration may be given to future editions of, or amendments to, EN 61010-1.

This Part 2-201 supplements or modifies the corresponding clauses in EN 61010-1 so as to convert that publication into the European standard: *Particular requirements for control equipment*.

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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

Endorsement notice

The text of the International Standard IEC 61010-2-201:2013 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 60079 series | NOTE | Harmonised in EN 60079 series. |
| IEC 60364 series | NOTE | Harmonised in HD 60364 series. |
| IEC 60364-4-41 | NOTE | Harmonised as HD 60364-4-41. |
| IEC 60664-5:2007 | NOTE | Harmonised as EN 60664-5:2007 (not modified). |
| IEC 60715:1981 + A1:1995 | NOTE | Harmonised as EN 60715:2001 (not modified). |
| IEC 60721-2-3:1987 | NOTE | Harmonised as HD 478.2.3 S1:1990 (not modified). |
| IEC 61131-2:2007 | NOTE | Harmonised as EN 61131-2:2007 (not modified). |
| IEC 61131-6:2012 | NOTE | Harmonised as EN 61131-6:2012 (not modified). |
| IEC 61140:2001 | NOTE | Harmonised as EN 61140:2002 (not modified). |
| IEC 61326 series | NOTE | Harmonised in EN 61326 series. |

| | | |
|------------------|------|---|
| IEC 61508 series | NOTE | Harmonised in EN 61508 series. |
| IEC 61643 series | NOTE | Harmonised in EN 61643 series. |
| IEC 61643-21 | NOTE | Harmonised as EN 61643-21. |
| IEC 61643-311 | NOTE | Harmonised as EN 61643-311. |
| IEC 61643-321 | NOTE | Harmonised as EN 61643-321. |
| IEC 61643-331 | NOTE | Harmonised as EN 61643-331. |
| IEC 61800 series | NOTE | Harmonised in EN 61800 series. |
| IEC 62133:2002 | NOTE | Harmonised as EN 62133:2003 (not modified). |
| IEC 62368 series | NOTE | Harmonised in EN 62368 series. |

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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Addition to Annex ZA of EN 61010-1:2010:

| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN/HD</u> | <u>Year</u> |
|-----------------------------------|--------------|---|------------------------------|--------------|
| IEC 60068-2-31 | 2008 | Environmental testing - Part 2-31: Tests - Test Ec: Rough handling shocks, primarily for equipment-type specimens | EN 60068-2-31 | 2008 |
| IEC 60384-14 | 2005 | Fixed capacitors for use in electronic equipment - Part 14: Sectional specification - Fixed capacitors for electromagnetic interference suppression and connection to the supply mains | EN 60384-14 | 2005 |
| IEC 60664-1 | 2007 | Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests | EN 60664-1 | 2007 |
| IEC 60695-2-11 + corr. January | 2000 2001 | Fire hazard testing - Part 2-11: Glowing/hot-wire based test methods - Glow-wire flammability test method for end-products | EN 60695-2-11 | 2001 |
| IEC 60947-5-1 | 2003 | Low-voltage switchgear and controlgear - Part 5-1: Control circuit devices and switching elements - Electromechanical control circuit devices | EN 60947-5-1 + corr. July | 2004 2005 |
| IEC 60947-7-1 | 2009 | Low-voltage switchgear and controlgear - Part 7-1: Ancillary equipment - Terminal blocks for copper conductors | EN 60947-7-1 | 2009 |
| IEC 61010-1 + corr. May | 2010 2011 | Safety requirements for electrical equipment for measurement, control and laboratory use - Part 1: General requirements | EN 61010-1 | 2010 |
| IEC 61010-2-030 | - | Safety requirements for electrical equipment for measurement, control and laboratory use - Part 2-030: Particular requirements for testing and measuring circuits | EN 61010-2-030 | - |
| IEC 61051-2 | 1991 | Varistors for use in electronic equipment - Part 2: Sectional specification for surge suppression varistors | - | - |



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Part 2-201: Particular requirements for control equipment

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Partie 2-201: Exigences particulières pour les équipements de commande

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CONTENTS

| | |
|--|----|
| FOREWORD..... | 5 |
| INTRODUCTION..... | 7 |
| 1 Scope and object..... | 8 |
| 1.1.1 Equipment included in scope | 8 |
| 1.1.2 Equipment excluded from scope | 9 |
| 1.2.1 Aspects included in scope | 9 |
| 1.2.2 Aspects excluded from scope | 9 |
| 2 Normative references | 10 |
| 3 Terms and definitions | 10 |
| 4 Tests | 12 |
| 4.1 General..... | 12 |
| 4.3.2 State of equipment | 12 |
| 4.4 Testing in single fault condition | 12 |
| 5 Marking and documentation..... | 14 |
| 5.4.3 Equipment installation | 14 |
| 6 Protection against electric shock | 14 |
| 6.1.2 Exceptions..... | 14 |
| 6.2.1 General..... | 14 |
| 6.2.2 Examination | 14 |
| 6.2.3 Openings above parts that are hazardous live | 14 |
| 6.2.4 Openings for pre-set controls | 15 |
| 6.2.101 Accessibility of interfaces/ports/terminals | 15 |
| 6.2.102 Control equipment | 17 |
| 6.6.1 General | 20 |
| 6.6.2 Terminals for external circuits..... | 20 |
| 6.6.3 Circuits with terminals which are hazardous live | 20 |
| 6.6.4 Terminals for stranded conductors..... | 20 |
| 6.7.2 Insulation for mains circuits of overvoltage category II with a nominal supply voltage up to 300 V | 22 |
| 6.7.3 Insulation for secondary circuits derived from mains circuits of overvoltage category II up to 300 V | 24 |
| 6.7.101 Insulation for field wiring terminals of overvoltage category II with a nominal voltage up to 1 000 V | 26 |
| 6.8.3 Test procedures | 26 |
| 6.10 Connection to the mains supply source and connections between parts of equipment | 26 |
| 6.11 Disconnection from supply source | 27 |
| 7 Protection against mechanical hazards..... | 27 |
| 7.1.101 Open and panel mounted equipment | 27 |
| 7.2 Sharp edges..... | 27 |
| 7.3.3 Risk assessment for mechanical hazards to body parts | 27 |
| 7.3.4 Limitation of force and pressure..... | 28 |
| 7.3.5 Gap limitations between moving parts | 28 |
| 7.7 Expelled parts | 28 |
| 8 Resistance to mechanical stresses | 28 |
| 8.1.101 Open equipment | 28 |

| | | |
|------------------------|--|----|
| 8.1.102 | Panel mounted equipment | 28 |
| 8.2.2 | Impact test | 28 |
| 8.3 | Drop test | 28 |
| 8.3.1 | Equipment other than hand-held equipment and direct plug-in equipment | 29 |
| 8.3.2 | Hand-held equipment and direct plug-in equipment | 29 |
| 9 | Protection against the spread of fire | 29 |
| 9.2 | Eliminating or reducing the sources of ignition within the equipment..... | 29 |
| 9.3.2 | Constructional requirements | 29 |
| 10 | Equipment temperature limits and resistance to heat..... | 30 |
| 10.1 | Surface temperature limits for protection against burns | 30 |
| 10.3 | Other temperature measurements | 31 |
| 10.4.1 | General | 31 |
| 10.4.2 | Temperature measurement of heating equipment | 32 |
| 10.4.3 | Equipment intended for installation in a cabinet or a wall..... | 32 |
| 10.5.2 | Non-metallic enclosures | 33 |
| 11 | Protection against hazards from fluids | 33 |
| 11.6 | Specially protected equipment..... | 33 |
| 12 | Protection against radiation, including laser sources, and against sonic and ultrasonic pressure | 33 |
| 13 | Protection against liberated gases and substances, explosion and implosion | 34 |
| 13.1 | Poisonous and injurious gases and substances | 34 |
| 13.2.1 | Components | 34 |
| 13.2.2 | Batteries and battery charging | 34 |
| 14 | Components and subassemblies | 34 |
| 14.101 | Components bridging insulation | 34 |
| 14.101.1 | Capacitors | 34 |
| 14.101.2 | Surge suppressors | 34 |
| 14.102 | Switching devices | 35 |
| 15 | Protection by interlocks | 35 |
| 16 | Hazards resulting from application | 35 |
| 17 | Risk assessment | 35 |
| Annexes | | 35 |
| Annex F (normative) | Routine tests | 36 |
| Annex L (informative) | Index of defined terms | 38 |
| Annex AA (informative) | General approach to safety for control equipment | 39 |
| Annex BB (informative) | System drawing of isolation boundaries | 41 |
| Annex CC (informative) | Historical techniques for secondary circuits | 49 |
| Annex DD (informative) | Cross references between IEC 61010-2-201 and IEC 61010-1:2010 or IEC 61131-2:2007 | 53 |
| Bibliography | | 54 |
| Figure 101 | – Typical interface/port diagram of control equipment..... | 16 |
| Figure 102 | – Requirements for insulation between separate circuits and between circuits and accessible conductive parts | 21 |
| Figure 103 | – Mechanical hazards requirements for panel mounted equipment | 27 |
| Figure 104 | – Safety enclosure with HMI installed through a wall | 30 |

| | |
|--|----|
| Figure 105 – Panel mounted HMI device extending through the wall of a cabinet..... | 33 |
| Figure AA.1 – Control equipment access and safety concerns | 39 |
| Figure BB.1 – Typical system enclosure layout | 42 |
| Figure BB.2 – Simplified system schematic..... | 43 |
| Figure BB.3 – Hazard situation of the control equipment..... | 44 |
| Figure BB.4 – Application of the standard to the control equipment safety drawing | 45 |
| Figure BB.5 – Reinforced insulation | 46 |
| Figure BB.6 – Basic insulation | 47 |
| Figure BB.7 – Reinforced insulation, basic insulation and limiting impedance | 48 |
| | |
| Table 101 – Overload test circuit values | 13 |
| Table 102 – Endurance test circuit values..... | 13 |
| Table 103 – Operator accessibility for open and enclosed equipment | 16 |
| Table 4 – Clearance and creepage distances for mains circuits of overvoltage category II up to 300 V | 23 |
| Table 5 – Test voltages for solid insulation between mains and between mains and secondary circuits overvoltage category II up to 300 V ^d | 24 |
| Table 6 – Clearances and test voltages for secondary circuits derived from mains circuits of overvoltage category II up to 300 V | 25 |
| Table 104 – Minimum creepages and clearances in air of overvoltage category II up to 1 000 V at field-wiring terminals | 26 |
| Table 105 – Drop tests..... | 29 |
| Table 19 – Surface temperature limits, under normal conditions | 31 |
| Table CC.1 – Limits of output current and output power for inherently limited power sources..... | 51 |
| Table CC.2 – Limits of output current, output power and ratings for over-current protective devices for non-inherently limited power sources..... | 52 |
| Table DD.1 – Cross-references between IEC 61010-2-201 and IEC 61010-1 or IEC 61131-2 | 53 |

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

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

| FDIS | Report on voting |
|-------------|------------------|
| 65/515/FDIS | 65/521/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 2-201 is intended to be used in conjunction with IEC 61010-1. It was established on the basis of the third edition (2010). Consideration may be given to future editions of, or amendments to, IEC 61010-1.

This Part 2-201 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 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.

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

It has the status of a basic safety publication in accordance with IEC Guide 104.

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.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site 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.

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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

This IEC 61010-2-201 document constitutes Part 2-201 of a planned series of standards on industrial-process measurement, control and automation equipment.

This part specifies the complete safety requirements for control equipment (e.g. programmable controller (PLC)), the components of Distributed Control Systems, 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 part.

This part incorporates the safety related requirements of Programmable Controllers.

Annex DD provides a cross reference between clauses of this standard and those of IEC 61010-1 or IEC 61131-2:2007.

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

Part 2-201: Particular requirements for control equipment

1 Scope and object

This clause of Part 1 is applicable, except as follows.

1.1.1 Equipment included in scope

Replacement:

This part of IEC 61010 specifies safety requirements and related verification tests for control equipment of the following types:

- Programmable controllers (PLC and PAC);
- the components of Distributed Control Systems (DCS);
- the components of remote I/O – systems;
- industrial PC (computers) and Programming and Debugging Tools (PADTs);
- Human-Machine Interfaces (HMI);
- any product performing the function of control equipment and/or their associated peripherals,

which have as their intended use the control and command of machines, automated manufacturing and industrial processes, e.g. discrete and continuous control.

Components of the above named equipment and in the scope of this standard are:

- (auxiliary) stand-alone power supplies;
- peripherals such as digital and analogue I/O, remote-I/O;
- industrial network equipment.

Control equipment and their associated peripherals are intended to be used in an industrial environment and may be provided 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 as example: insulation, spacings and power restrictions.

NOTE 2 Computing devices and similar equipment within the scope of IEC 60950 (planned to be replaced by IEC 62368) and conforming to its requirements are considered to be suitable for use with control equipment within the scope of this standard. However, some of the requirements of IEC 60950 for resistance to moisture and liquids are less stringent than those in IEC 61010-1:2010, 5.4.4 second paragraph.

Control equipment covered in this standard is intended for use in overvoltage category II (IEC 60664-1) in low-voltage installations, where the rated equipment supply voltage does not exceed a.c. 1 000 V r.m.s. (50/60 Hz), or d.c. 1 500 V.

NOTE 3 If equipment in the scope of this part is applied to overvoltage category III and IV installations, then the requirements of Annex K of Part 1 apply.

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

1.1.2 Equipment excluded from scope

Replacement:

This standard does not deal with aspects of the overall automated system, e.g. a complete assembly line. Control equipment (e.g. DCS and PLC), their application program 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 standard. Refer to IEC 60364 series of standards or applicable national/local regulations for electrical installation and guidelines.

1.2.1 Aspects included in scope

Replacement:

The purpose of the requirements of this standard 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 standard considers the perception of hazards depending on training and skills. Annex AA gives a general approach in this regard.

Requirements for protection against particular types of hazard are given in Clauses 6 to 13, as follows:

- a) electric shock or burn (see Clause 6);
- b) mechanical hazards (see Clauses 7 and 8);
- c) spread of fire from the control equipment (see Clause 9);
- d) excessive temperature (see Clause 10);
- e) effects of fluids and fluid pressure (see Clause 11);
- f) effects of radiation, including lasers sources, and sonic and ultrasonic pressure (see Clause 12);
- g) liberated gases, explosion and implosion (see Clause 13);

Requirements for protection against hazards arising from reasonably foreseeable misuse and ergonomic factors are specified in Clause 16.

Risk assessment for hazards or environments not fully covered above is specified in Clause 17.

NOTE Attention is drawn to the existence of additional requirements regarding the health and safety of labour forces.

1.2.2 Aspects excluded from scope

Replacement:

This standard 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. IEC 61326 or IEC 61131-2);
- d) protective measures for explosive atmospheres (See e.g. IEC 60079 series);
- e) functional safety (See e.g. IEC 61508 or IEC 61131-6).