



BSI Standards Publication

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

Part 2-120: Particular safety requirements for machinery aspects of equipment

National foreword

This British Standard is the UK implementation of EN IEC 61010-2-120:2018. It is identical to IEC 61010-2-120:2016.

The UK participation in its preparation was entrusted to Technical Committee EPL/66, Safety of measuring, control and laboratory equipment.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2018
Published by BSI Standards Limited 2018

ISBN 978 0 580 82118 9

ICS 19.080

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 May 2018.

Amendments/corrigenda issued since publication

Date	Text affected
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English Version

Safety requirements for electrical equipment for measurement,
control, and laboratory use - Part 2-120: Particular safety
requirements for machinery aspects of equipment
(IEC 61010-2-120:2016)

Exigences de sécurité pour appareils électriques de
mesurage, de régulation et de laboratoire - Partie 2-120:
Exigences de sécurité particulières pour les aspects des
appareils relatifs aux machines
(IEC 61010-2-120:2016)

Sicherheitsbestimmungen für elektrische Mess-, Steuer-,
Regel- und Laborgeräte - Teil 2-120: Besondere
Sicherheitsanforderungen für Maschinen-Aspekte der
Geräte
(IEC 61010-2-120:2016)

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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.

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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

European foreword

This document (EN IEC 61010-2-120:2018) consists of the text of IEC 61010-2-120:2016 prepared by IEC/TC 66 "Safety of measuring, control and laboratory equipment".

The following dates are fixed:

- latest date by which this document has to be implemented (dop) 2018-10-13
at national level by publication of an identical national
standard or by endorsement
- latest date by which the national standards conflicting with (dow) 2021-04-13
this 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.

Endorsement notice

The text of the International Standard IEC 61010-2-120:2016 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:

The bibliography of EN 61010-1:2010 applies except as follows:

Add

ISO 11161	NOTE	Harmonized as EN ISO 11161.
ISO 13732-3:2005	NOTE	Harmonized as EN ISO 13732-3:2005.
ISO 13855	NOTE	Harmonized as EN ISO 13855.
ISO/TR 23849:2010		

Delete

ISO 13852	NOTE	Harmonized as EN 13852.
EN 294		

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 When 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.cenelec.eu.

Annex ZA of EN 61010-1:2010 applies except as follows:

Add

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60947-5-5	-	Low-voltage switchgear and controlgear -- Part 5-5: Control circuit devices and switching elements - Electrical emergency stop device with mechanical latching function	EN 60947-5-5	-
ISO 5349-1	-	Mechanical vibration- Measurement and evaluation of human exposure to hand-transmitted vibration- Part 1: General requirements	EN ISO 5349-1	-
ISO 7010	-	Graphical symbols - Safety colours and safety signs - Registered safety signs	EN ISO 7010	-
ISO 12100	-	Safety of machinery - General principles for design - Risk assessment and risk reduction	EN ISO 12100	-
ISO 13849-1	-	Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design	EN ISO 13849-1	-
ISO 13850	-	Safety of machinery - Emergency stop function - Principles for design	EN ISO 13850	-
ISO 13857	-	Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs	EN ISO 13857	-
IEC/TR 62471-2	-	Photobiological safety of lamps and lamp systems - Part 2: Guidance on manufacturing requirements relating to non-laser optical radiation safety	-	-
IEC 62061	-	Safety of machinery - Functional safety of safety-related electrical, electronic and programmable electronic control systems	-	-

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SAFETY REQUIREMENTS FOR ELECTRICAL EQUIPMENT FOR
MEASUREMENT, CONTROL, AND LABORATORY USE –****Part 2-120: Particular safety requirements
for machinery aspects of 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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- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

This part of International Standard IEC 61010 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
66/601/FDIS	66/606/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 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*, may be found on the IEC website.

This Part 2-120 is intended to be used in conjunction with IEC 61010-1. It was established on the basis of the third edition (2010).

This Part 2-120 supplements or modifies the corresponding clauses in IEC 61010-1, so as to convert that publication into the IEC standard: *Particular safety requirements for machinery aspects of 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 standard states "addition", "modification" or "replacement", the relevant text in Part 1 is to be adapted accordingly.

In this standard,

- 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 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 and additional list items are numbered from aa). Additional annexes are numbered AA and BB.

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 amendments will be supplemented or modified by the special requirements of one, or more than one, particular Part 2s of the standard which are to be read in conjunction with the Part 1 requirements.

This Part 2-120 specifies the safety requirements for equipment that may present HAZARDS from the power driven moving parts incorporated in the equipment.

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

Part 2-120: Particular safety requirements for machinery aspects of equipment

1 Scope and object

This clause of Part 1 is applicable except as follows:

1.1.1 Equipment included in scope

Addition:

Add the following new paragraph before the first paragraph:

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.

Replacement:

Replace the first paragraph with the following:

This Part 2 of IEC 61010 specifies particular safety requirements for the following types of electrical equipment and their accessories, wherever they are intended to be used, which fall under a), b), or c) below and present HAZARDS from the power driven moving parts according to one or more of the items 1) to 5) used by the equipment for a specific application.

- 1) An assembly, fitted with or intended to be fitted with a drive system other than directly applied human or animal effort, consisting of linked parts or components, at least one of which moves, and which are joined together for a specific application.
- 2) An assembly referred to in item 1), missing only the components to connect it on site or to sources of energy and motion.
- 3) An assembly referred to in items 1) and 2), ready to be installed and able to function as it stands only if mounted on a means of transport, or installed in a building or a structure.
- 4) Assemblies referred to in items 1), 2) and 3) or partly completed assemblies which, in order to achieve the same end, are arranged and controlled so that they function as an integral whole.

A partly completed assembly is equipment which cannot perform a specific application by itself. A partly completed assembly is only intended to be incorporated into, or assembled with, other equipment, thereby forming equipment to which this standard applies.

- 5) An assembly of linked parts or components, at least one of which moves and which are joined together, intended for lifting loads and whose only power source is directly applied human effort.

Addition:

Add the following paragraph at the end of the subclause:

If all or part of the equipment falls within the scope of one or more other part 2 standards of IEC 61010 as well as within the scope of this standard, it will also need to meet the requirements of those other Part 2 standards.

1.2.1 Aspects included in scope

Replacement:

Replace the first sentence with:

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

Addition:

Add the following new paragraphs before the note:

Requirements for CONTROL SYSTEMS and devices related to safety are specified in Clause 101.

Protection against HAZARDS during specific operating conditions of equipment are specified in Clause 102.

Protection against HAZARDS during maintenance and service are specified in Clause 103.

2 Normative references

This clause of Part 1 is applicable except as follows:

Addition:

Add the following new normative references:

IEC 60947-5-5, *Low-voltage switchgear and controlgear – Part 5-5: Control circuit devices and switching elements – Electrical emergency stop device with mechanical latching function*

IEC 62061, *Safety of machinery – Functional safety of safety-related electrical, electronic and programmable electronic control systems*

IEC 62471, *Photobiological safety of lamps and lamp systems*

IEC TR 62471-2, *Photobiological safety of lamps and lamp systems – Part 2: Guidance on manufacturing requirements relating to non-laser optical radiation safety*

ISO 5349-1, *Mechanical vibration – Measurement and evaluation of human exposure to hand-transmitted vibration – Part 1: General requirements*

ISO 7010, *Graphical symbols – Safety colours and safety signs – Registered safety signs*

ISO 12100, *Safety of machinery – General principles for design – Risk assessment and risk reduction*

ISO 13849-1, *Safety of machinery – Safety-related parts of control systems – Part 1: General principles for design*

ISO 13850, *Safety of machinery – Emergency stop function – Principles for design*

ISO 13857, *Safety of machinery – Safety distances to prevent hazard zones being reached by upper and lower limbs*

3 Terms and definitions

This clause of Part 1 is applicable except as follows:

3.1 Equipment and states of equipment

Addition:

Add the following new terms and definitions:

3.1.101

TRANSPORTABLE EQUIPMENT

equipment that is intended to be moved from one place to another whether or not connected to a supply and without an appreciable restriction of range

Note 1 to entry: An example for TRANSPORTABLE EQUIPMENT is equipment considered as MOBILE EQUIPMENT and PORTABLE EQUIPMENT.

3.1.102

MOBILE EQUIPMENT

TRANSPORTABLE EQUIPMENT intended to be moved, or capable of moving, from one location to another while supported by its own wheels or equivalent means

3.1.103

CONTROL POSITION

OPERATING POSITION

position where the operator will be located when using the equipment controls

Note 1 to entry: There may be one or more CONTROL POSITIONS. The CONTROL POSITION is outside of the equipment.

Note 2 to entry: There may be one or more OPERATING POSITIONS. The OPERATING POSITION is an integral part of the equipment.

3.1.104

CONTROL SYSTEM

all the parts of the equipment forming a system to provide, for example, operational control, monitoring, interlocking, communications, protection or safety-related control functions

Note 1 to entry: These parts include electrical, electronic and programmable electronic parts and devices as well as the mechanical parts.

Note 2 to entry: Safety-related control functions can be performed by a CONTROL SYSTEM that is either integral to or independent of those parts of a CONTROL SYSTEM that performs non-safety-related functions.

3.2 Parts and accessories

3.2.5

PROTECTIVE BARRIER

Replacement:

Replace the definition of 3.2.5 with the following new definition:

part of equipment specifically used to provide protection from a HAZARD by means of a physical barrier