BS EN 61140:2016

BSI Standards Publication

Protection against electric shock — Common aspects for installation and equipment

bsi.

National foreword

This British Standard is the UK implementation of EN 61140:2016. It is identical to IEC 61140:2016. It supersedes BS EN 61140:2002+A1:2006 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee JPEL/64, Electrical installations of buildings - Joint committee.

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.

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

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Amendments/corrigenda issued since publication

Date	Text affected

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61140

May 2016

ICS 13.260; 29.020; 91.140.50

Supersedes EN 61140:2002

English Version

Protection against electric shock - Common aspects for installation and equipment (IEC 61140:2016)

Protection contre les chocs électriques - Aspects communs aux installations et aux matériels (IEC 61140:2016)

Schutz gegen elektrischen Schlag - Gemeinsame Anforderungen für Anlagen und Betriebsmittel (IEC 61140:2016)

This European Standard was approved by CENELEC on 2016-02-11. 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.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

The text of document 64/2076/FDIS, future edition 4 of IEC 61140, prepared by IEC/TC 64 "Electrical installations and protection against electric shock" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61140:2016.

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) 2016-11-27
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2019-05-27

This document supersedes EN 61140:2002.

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 document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association.

Endorsement notice

The text of the International Standard IEC 61140:2016 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:

IEC 60364-4-41:2005	NOTE	Harmonized as HD 60364-4-41:2007 (modified).
IEC 60364-4-44:2007	NOTE	Harmonized as HD 60364-4-442:2012 (modified) and as HD 60364-4-444:2010 (modified).
IEC 60364-6:2006	NOTE	Harmonized as HD 60364-6:2007 (modified).
IEC 60601-1	NOTE	Harmonized as EN 60601-1.
IEC 61558-2-6	NOTE	Harmonized as EN 61558-2-6.
IEC 61936-1	NOTE	Harmonized as EN 61936-1.

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 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.

Publication	Year	Title	EN/HD	Year
IEC 60038	-	IEC standard voltages	EN 60038	-
IEC 60068	series	Environmental testing	EN 60068	series
IEC 60071-1	-	Insulation co-ordination - Part 1: Definitions, principles and rules	EN 60071-1	-
IEC 60071-2	-	Insulation co-ordination - Part 2: Application guide	EN 60071-2	-
IEC 60364-5-54	2011	Low-voltage electrical installations - Part 5-54: Selection and erection of electrical equipment - Earthing arrangements and protective conductors	HD 60364-5-54	2011
IEC 60417	-	Graphical symbols for use on equipment	-	-
IEC 60445	-	Basic and safety principles for man-machine interface, marking and identification - Identification of equipment terminals, conductor terminations and conductors	EN 60445	-
IEC/TS 60479-1	2005	Effects of current on human beings and livestock - Part 1: General aspects	-	-
IEC/TR 60479-5	-	Effects of current on human beings and livestock - Part 5: Touch voltage threshold values for physiological effects	-	-
IEC 60529	-	Degrees of protection provided by enclosures (IP Code)	EN 60529	-
IEC 60664	series	Insulation coordination for equipment within low-voltage systems	EN 60664	series
IEC 60664-1	2007	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	2007

Publication	Year	Title	EN/HD	Year
IEC 60721	series	Classification of environmental conditions	EN 60721	series
IEC 60990	-	Methods of measurement of touch current and protective conductor current	EN 60990	-
IEC/TS 61201	2007	Use of conventional touch voltage limits - Application guide	-	-
IEC 62271-102	-	High-voltage switchgear and controlgear - Part 102: Alternating current disconnectors and earthing switches	EN 62271-102	-
IEC Guide 104	-	The preparation of safety publications and the use of basic safety publications and group safety publications	-	-
ISO/IEC Guide 51	2014	Safety aspects - Guidelines for their inclusion in standards	-	-

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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PROTECTION AGAINST ELECTRIC SHOCK – COMMON ASPECTS FOR INSTALLATION AND 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 61140 has been prepared by IEC technical committee 64: Electrical installations and protection against electric shock.

This fourth edition cancels and replaces the third edition published in 2001 and Amendment 1:2004. This edition constitutes a technical revision.

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

a) Introduction of the content of IEC 60449
b) Better distinction between provisions and measures
c) Consideration of effects other than ventricular fibrillation
d) Additional protection was introduced
e) ELV defined as part of LV
f) Devices suitable for isolation required for automatic disconnection of supply (LV)

g) Requirements relating to current in the protective conductor were moved to the main body of the standard

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

FDIS	Report on voting
64/2076/FDIS	64/2091/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.

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

The reader's attention is drawn to the fact that Annex C lists all of the “in-some-country” clauses on differing practices of a less permanent nature relating to the subject of this standard.

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.

PROTECTION AGAINST ELECTRIC SHOCK – COMMON ASPECTS FOR INSTALLATIONS AND EQUIPMENT

1 Scope

This International Standard is a basic safety publication primarily intended for use by technical committees in the preparation of standards in accordance with the principles laid down in IEC Guide 104 and ISO/IEC Guide 51.

It is not intended to be used as a stand-alone standard.

According to IEC Guide 104, technical committees, when preparing, amending, or revising their publications, are required to make use of any basic safety publication such as IEC 61140.

This International Standard applies to the protection of persons and livestock against electric shock. The intent is to give fundamental principles and requirements which are common to electrical installations, systems and equipment or necessary for their coordination, without limitations with regard to the magnitude of the voltage or current, or the type of current, and for frequencies up to 1 000 Hz.

Some clauses in this standard refer to low-voltage and high-voltage systems, installations and equipment. For the purposes of this standard, low-voltage is any rated voltage up to and including 1 000 V a.c. or 1 500 V d.c.. High voltage is any rated voltage exceeding 1 000 V a.c. or 1 500 V d.c..

It should be noted that, for an efficient design and selection of protective measures, the type of voltage that may occur and its waveform needs to be considered, i.e. a.c. or d.c. voltage, sinusoidal, transient, phase controlled, superimposed d.c., as well as a possible mixture of these forms. The installations or equipment may influence the waveform of the voltage, e.g. by inverters or converters. The currents flowing under normal operating conditions and under fault conditions depend on the described voltage.

2 Normative references

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.

IEC 60038, *IEC standard voltages*

IEC 60068 (all parts), *Environmental testing*

IEC 60071-1, *Insulation coordination – Part 1: Definitions, principles and rules*

IEC 60071-2, *Insulation coordination – Part 2: Application guide*

IEC 60364-5-54:2011, *Low-voltage electrical installations – Part 5-54: Selection and erection of electrical equipment – Earthing arrangements and protective conductors*

IEC 60417, *Graphical symbols for use on equipment*
(available at http://www.graphical-symbols.info/equipment)