



NSAI
Standards

Irish Standard Recommendation
S.R. HD 60364-4-41:2017&A11:2017

Low-voltage electrical installations - Part 4-41: Protection for safety - Protection against electric shock

S.R. HD 60364-4-41:2017&A11:2017

Incorporating amendments/corrigenda/National Annexes issued since publication:

HD 60364-4-41:2017/A11:2017

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National Foreword

S.R. HD 60364-4-41:2017&A11:2017 is the adopted Irish version of the European Document HD 60364-4-41:2017, Low-voltage electrical installations - Part 4-41: Protection for safety - Protection against electric shock

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

HD 60364-4-41:2017/A11

August 2017

ICS 91.140.50; 13.260

English Version

Low-voltage electrical installations - Part 4-41: Protection for safety - Protection against electric shock

Installations électriques à basse tension - Partie 4-41:
Protection pour assurer la sécurité - Protection contre les
chocs électriques

Errichten von Niederspannungsanlagen - Teil 4-41:
Schutzmaßnahmen - Schutz gegen elektrischen Schlag

This amendment A11 modifies the European Standard HD 60364-4-41:2017; it was approved by CENELEC on 2017-05-31. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 amendment 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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, 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: Avenue Marnix 17, B-1000 Brussels

HD 60364-4-41:2017/A11:2017 (E)

European foreword

This document (HD 60364-4-41:2017/A11:2017) has been prepared by CLC/TC 64, "Electrical installations and protection against electric shock".

The following dates are fixed:

- latest date by which this document has (dop) 2018-05-31
to be implemented at national level by
publication of an identical national
standard or by endorsement
- latest date by which the national (dow) 2020-05-31
standards conflicting with 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.

HARMONIZATION DOCUMENT
DOCUMENT D'HARMONISATION
HARMONISIERUNGSDOKUMENT

HD 60364-4-41

July 2017

ICS 13.260; 91.140.50

Supersedes HD 60364-4-41:2007

English Version

**Low-voltage electrical installations -
Part 4-41: Protection for safety - Protection against
electric shock
(IEC 60364-4-41:2005 , modified + A1:2017 , modified)**

Installations électriques à basse tension -
Partie 4-41: Protection pour assurer la sécurité - Protection
contre les chocs électriques
(IEC 60364-4-41:2005 , modifiée + A1:2017 , modifiée)

Errichten von Niederspannungsanlagen -
Teil 4-41: Schutzmaßnahmen - Schutz gegen
elektrischen Schlag
(IEC 60364-4-41:2005 , modifiziert + A1:2017 , modifiziert)

This Harmonization Document was approved by CENELEC on 2016-12-30. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for implementation of this Harmonization Document at national level.

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This Harmonization Document exists in three official versions (English, French, German).

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, 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: Avenue Marnix 17, B-1000 Brussels

HD 60364-4-41:2017

European foreword

The text of document 64/2147/FDIS, future IEC 60364-4-41:2005/A1, 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 HD 60364-4-41:2017.

A draft amendment, which covers common modifications to IEC 60364-4-41:2005/A1 (64/2147/FDIS), was prepared by CLC/TC 64 "Electrical installations and protection against electric shock", was submitted to the formal vote and approved by CENELEC.

A further draft amendment, prepared by WG 09, Disconnection times and related matters, of CLC/TC 64 "Electrical installations and protection against electric shock", was submitted to the formal vote.

The following dates are fixed:

- latest date by which the document has to (dop) 2018-01-07
be implemented at national level by
publication of an identical national
standard or by endorsement
- latest date by which the national (dow) 2020-07-07
standards conflicting with the
document have to be withdrawn

Annexes ZA and ZB have been added by CENELEC.

In this document, the common modifications to the International Standard are indicated by a vertical line in the left margin of the text.

This Harmonization Document supersedes HD 60364-4-41:2007.

HD 60364-4-41:2017 includes the following significant technical changes with respect to HD 60364-4-41:2007:

- The requirements of clause 411.3.1.2, relating to protective bonding, have been revised in a number of respects.
- Clause 411.3.2.1 now requires that the device providing automatic disconnection in the event of a fault shall be suitable for isolation of at least the line conductors.
- The disconnection times referred to in clause 411.3.2.2 now apply also to final circuits with a rated current not exceeding 63 A with one or more socket-outlets.
- Certain requirements of clause 411.3.2.5 relating to where it is not feasible for an overcurrent protective device to interrupt the supply or the use of a residual current protective device (RCD) for this purpose are not appropriate have been relocated to an annex (Annex D) and modified.
- The range of rated currents of socket-outlets that are required by clause 411.3.3 to be provided with additional protection by means of a residual current protective device (RCD) with a rated residual operating current not exceeding 30 mA has been extended up to 32 A.
- A new clause, 411.3.4, requires that lighting circuits of a TN or TT system in single household premises shall be provided with protection by a residual current protective device with a rated residual operating current not exceeding 30 mA.
- The note in clause 411.4.4 now gives product standard numbers and certain other particulars for residual current devices for use in connection with the requirements of

the clause.

- In clause 411.6.2, relating to earthing of exposed-conductive-parts in IT systems, the condition $R_A \times I_d \leq 120 \text{ V}$ for d.c. systems has been deleted.
- The requirements of clause 411.6.3.1 for fault protection in IT systems have been revised in a number of respects.
- The requirements of clause 412.2.4.1 for wiring systems providing basic protection and fault protection considered to meet the requirements for the protective measure of double or reinforced insulation have been revised in a number of respects.
- The former content of Annex D, relating to correspondence between IEC 60364-4-41:2001 and IEC 60364-4-41:2005, has been deleted and is replaced by content relating to provisions where automatic disconnection according to clause 411.3.2 is not feasible.

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.

Annexes which are additional to those in IEC 60364-4-41:2005/A1:2017 are prefixed "Z".

Endorsement notice

The text of the International Standard IEC 60364-4-41:2005/A1:2017 was approved by CENELEC as a Harmonization Document with agreed common modifications.

HD 60364-4-41:2017

Contents

European foreword	2
410 Introduction	5
410.1 Scope.....	6
410.2 Normative references	6
410.3 General requirements	7
411 Protective measure: automatic disconnection of supply	8
411.1 General	8
411.2 Requirements for basic protection	8
411.3 Requirements for fault protection	8
411.4 TN systems	10
411.5 TT systems.....	11
411.6 IT systems.....	12
411.7 Functional extra-low voltage (FELV)	14
412 Protective measure: double or reinforced insulation.....	15
412.1 General	15
412.2 Requirements for basic protection and fault protection	15
413 Protective measure: electrical separation	17
413.1 General	17
413.2 Requirements for basic protection	18
413.3 Requirements for fault protection.....	19
414 Protective measure: extra-low-voltage provided by SELV and PELV.....	18
414.1 General	18
414.2 Requirements for basic protection and fault protection	19
414.3 Sources for SELV and PELV	19
414.4 Requirements for SELV and PELV circuits.....	19
415 Additional protection	21
415.1 Additional protection: residual current protective devices (RCDs)	21
415.2 Additional protection: supplementary protective equipotential bonding.....	21
Annex A (normative) Provisions for basic protection (protection against direct contact)	22
Annex B (normative) Obstacles and placing out of reach	23
Annex C (normative) Protective measures for application only when the installation is controlled or under the supervision of skilled or instructed persons.....	24
Annex D (normative) Provisions where automatic disconnection according to 411.3.2 is not feasible	28
Annex E (informative) List of notes concerning certain countries	
Bibliography.....	37
Annex ZA (normative) Special national conditions.....	29
Annex ZB (informative) A-deviations	34
Figure B.1 - Zone of arm's reach.....	23
Table 41.1 - Maximum disconnection times.....	9

410 Introduction

This Part 4-41 of HD 60364 deals with protection against electric shock as applied to electrical installations. It is based on EN 61140 which is a basic safety standard that applies to the protection of persons and livestock. EN 61140 is intended to give fundamental principles and requirements that are common to electrical installations and equipment or are necessary for their co-ordination.

The fundamental rule of protection against electric shock, according to EN 61140, is that hazardous-live-parts must not be accessible and accessible conductive parts must not be hazardous live, neither under normal conditions nor under single fault conditions.

According to 4.2 of EN 61140, protection under normal conditions is provided by basic protective provisions and protection under single fault conditions is provided by fault protective provisions. Alternatively, protection against electric shock is provided by an enhanced protective provision, which provides protection under normal conditions and under single fault conditions.

This standard in accordance with IEC Guide 104 has the status of a group safety publication (GSP) for protection against electric shock.

HD 60364-4-41:2017

410.1 Scope

Part 4-41 of HD 60364 specifies essential requirements regarding protection against electric shock, including basic protection (protection against direct contact) and fault protection (protection against indirect contact) of persons and livestock. It deals also with the application and co-ordination of these requirements in relation to external influences.

Requirements are also given for the application of additional protection in certain cases.

410.2 Normative references

The following referenced documents are indispensable for the application 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.

IEC 60364-5-52, *Electrical installations of buildings – Part 5-52: Selection and erection of electrical equipment - Wiring systems*

HD 60364-5-54, *Electrical installations of buildings – Part 5-54: Selection and erection of electrical equipment – Earthing arrangements, protective conductors and protective bonding conductors* (IEC 60364-5-54, modified)

HD 60364-6, *Low-voltage electrical installations – Part 6: Verification* (IEC 60364-6, modified)

EN 60439-1, *Low-voltage switchgear and controlgear assemblies* (IEC 60439-1)

IEC 60449, *Voltage bands for electrical installations of buildings*

IEC 60614 (all parts), *Conduits for electrical installations - Specification*

IEC 61084 (all parts), *Cable trunking and ducting systems for electrical installations*

EN 61140, *Protection against electric shock – Common aspects for installation and equipment* (IEC 61140)

EN 61386 (all parts), *Conduit systems for cable management* (IEC 61386 – all parts)

EN 61558-2-6, *Safety of power transformers, power supply units and similar – Part 2-6: Particular requirements for safety isolating transformers for general use* (IEC 61558-2-6)

IEC Guide 104, *The preparation of safety publications and the use of basic safety publications and group safety publications*



IEC 60364-4-41

Edition 5.1 2017-03

FINAL VERSION

VERSION FINALE

GROUP SAFETY PUBLICATION
PUBLICATION GROUPEE DE SÉCURITÉ

**Low-voltage electrical installations –
Part 4-41: Protection for safety – Protection against electric shock**

**Installations électriques à basse tension –
Partie 4-41: Protection pour assurer la sécurité – Protection contre les chocs
électriques**

CONTENTS

FOREWORD	3
410 Introduction	5
410.1 Scope	6
410.2 Normative references	6
410.3 General requirements	7
411 Protective measure: automatic disconnection of supply	8
411.1 General	8
411.2 Requirements for basic protection	8
411.3 Requirements for fault protection	9
411.4 TN system	10
411.5 TT system	12
411.6 IT system	13
411.7 Functional extra-low voltage (FELV)	15
412 Protective measure: double or reinforced insulation	16
412.1 General	16
412.2 Requirements for basic protection and fault protection	16
413 Protective measure: electrical separation	18
413.1 General	18
413.2 Requirements for basic protection	18
413.3 Requirements for fault protection	18
414 Protective measure: extra-low-voltage provided by SELV and PELV	19
414.1 General	19
414.2 Requirements for basic protection and fault protection	19
414.3 Sources for SELV and PELV	20
414.4 Requirements for SELV and PELV circuits	20
415 Additional protection	21
415.1 Additional protection: residual current protective devices (RCDs)	21
415.2 Additional protection: supplementary protective equipotential bonding	22
Annex A (normative) Provisions for basic protection	23
Annex B (normative) Obstacles and placing out of reach	25
Annex C (normative) Protective measures for application only when the installation is controlled or under the supervision of skilled or instructed persons	27
Annex D (normative) Provisions where automatic disconnection according to 411.3.2 is not feasible	30
Annex E (informative) List of notes concerning certain countries	31
Bibliography	35
Figure B.1 – Zone of arm's reach	26
Table 41.1 – Maximum disconnection times	10

IEC 60364-4-41:2005+AMD1:2017 CSV – 3 –
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

LOW-VOLTAGE ELECTRICAL INSTALLATIONS –

Part 4-41: Protection for safety – Protection against electric shock

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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DISCLAIMER

This Consolidated version is not an official IEC Standard and has been prepared for user convenience. Only the current versions of the standard and its amendment(s) are to be considered the official documents.

This Consolidated version of IEC 60364-4-41 bears the edition number 5.1. It consists of the fifth edition (2005-12) [documents 64/1489/FDIS and 64/1500/RVD] and its amendment 1 (2017-03) [documents 64/2147/FDIS and 64/2151/RVD]. The technical content is identical to the base edition and its amendment.

This Final version does not show where the technical content is modified by amendment 1. A separate Redline version with all changes highlighted is available in this publication.

International Standard IEC 60364-4-41 has been prepared by IEC technical committee 64: Electrical installations and protection against electric shock.

This fifth edition constitutes a technical revision.

The main changes with respect to the previous edition are listed below:

- adoption of IEC 61140 terminology;
- layout rationalized on basis of complete protective measures (i.e. appropriate practical combinations of protective provision in normal service (direct contact protection) and protective provision in case of a fault (indirect contact protection);
- requirements of 471 and 481, which were included in the fourth edition have been rationalized
- disconnection requirements for TT systems clarified;
- IT systems considered more fully;
- requirements in certain cases for additional protection of socket-outlets by means of a 30 mA RCD, where the protective measure is automatic disconnection of supply.

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

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

The Part 4 series comprises the following parts under the general title *Low-voltage electrical installations*:

Part 4-41: Protection for safety – Protection against electric shock

Part 4-42: Protection for safety – Protection against thermal effects

Part 4-43: Protection for safety – Protection against overcurrent

Part 4-44: Protection for safety – Protection against voltage disturbances and electromagnetic disturbances

The committee has decided that the contents of the base publication and its amendment 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.

410 Introduction

This Part 4-41 of IEC 60364 deals with protection against electric shock as applied to electrical installations. It is based on IEC 61140 which is a basic safety standard that applies to the protection of persons and livestock. IEC 61140 is intended to give fundamental principles and requirements that are common to electrical installations and equipment or are necessary for their co-ordination.

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This standard has the status of a group safety publication (GSP) for protection against electric shock.

In the fourth edition of IEC 60364 (2001):

- protection under normal conditions (now designated basic protection) was referred to as protection against direct contact and
- protection under fault conditions (now designated fault protection) was referred to as protection against indirect contact.

LOW-VOLTAGE ELECTRICAL INSTALLATIONS –

Part 4-41: Protection for safety – Protection against electric shock

410.1 Scope

Part 4-41 of IEC 60364 specifies essential requirements regarding protection against electric shock, including basic protection (protection against direct contact) and fault protection (protection against indirect contact) of persons and livestock. It deals also with the application and co-ordination of these requirements in relation to external influences.

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IEC 60364-6, *Low-voltage electrical installations – Part 6: Verification* ¹⁾

IEC 60449, *Voltage bands for electrical installations of buildings*

IEC 60614 (all parts), *Conduits for electrical installations – Specification*

IEC 61084 (all parts), *Cable trunking and ducting systems for electrical installations*

IEC 61140, *Protection against electric shock – Common aspects for installation and equipment*

IEC 61386 (all parts), *Conduit systems for electrical installations*

IEC 61439 (all parts), *Low-voltage switchgear and controlgear assemblies*

IEC 61558-2-6, *Safety of power transformers, power supply units and similar – Part 2-6: Particular requirements for safety isolating transformers for general use*

IEC 62477-1, *Safety requirements for power electronic converter systems and equipment – Part 1: General*

IEC Guide 104, *The preparation of safety publications and the use of basic safety publications and group safety publications*

¹⁾ To be published.

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