

MADALPINGELISED ELEKTRIPAIGALDISED. OSA 5-54:
ELEKTRISEADMETE VALIK JA PAIGALDAMINE.
MAANDAMINE JA KAITSEJUHID

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

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-HD 60364-5-54:2011 sisaldab Euroopa standardi HD 60364-5-54:2011 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 29.07.2011 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 22.07.2011.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-HD 60364-5-54:2011 consists of the English text of the European standard HD 60364-5-54:2011.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 29.07.2011 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.</p> <p>Date of Availability of the European standard text 22.07.2011.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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Ingliskeelsed võtmesõnad: protection,

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English version

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

Installations électriques basse-tension -
Partie 5-54: Choix et mise en oeuvre des
matériels électriques -
Installations de mise à la terre et
conducteurs de protection
(CEI 60364-5-54:2011)

Errichten von Niederspannungsanlagen -
Teil 5-54: Auswahl und Errichtung
elektrischer Betriebsmittel -
Erdungsanlagen, Schutzleiter und
Schutzpotentialausgleichsleiter
(IEC 60364-5-54:2011)

This Harmonization Document was approved by CENELEC on 2011-04-27. 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.

Up-to-date lists and bibliographical references concerning such national implementations may be obtained on application to the Central Secretariat or to any CENELEC member.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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 64/1755/FDIS, future edition 3 of IEC 60364-5-54, prepared by IEC TC 64, Electrical installations and protection against electric shock, was submitted to the IEC-CENELEC parallel vote.

A draft amendment, prepared by the Technical Committee CENELEC TC 64, Electrical installations and protection against electric shock, was submitted to the formal vote.

The combined texts were approved by CENELEC as HD 60364-5-54 on 2011-04-27.

This European Standard supersedes HD 60364-5-54:2007.

The main changes with respect to HD 60364-5-54:2007 are listed below:

- clarification of the definition of protective conductor;
- improved specification of mechanical characteristics of the earth electrode;
- introduction of earth electrode for protection against electric shock and lighting protection;
- annexes describing concrete-embedded foundation earth electrodes and soil-embedded earth electrode.

The following dates were fixed:

- | | | |
|---|-------|------------|
| – latest date by which the existence of the HD has to be announced at national level | (doa) | 2011-10-27 |
| – latest date by which the HD has to be implemented at national level by publication of an harmonized national standard or by endorsement | (dop) | 2012-04-27 |
| – latest date by which the national standards conflicting with the HD have to be withdrawn | (dow) | 2014-04-27 |

Annexes ZA, ZB and ZC have been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60364-5-54:2011 was approved by CENELEC as a Harmonization Document without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60079-0	NOTE Harmonized as EN 60079-0.
IEC 60079-14	NOTE Harmonized as EN 60079-14.
IEC 60364-4-43	NOTE Harmonized as HD 60364-4-43.
IEC 60364-5-52	NOTE Harmonized as HD 60364-5-52.
IEC 60364-6	NOTE Harmonized as HD 60364-6.
IEC 60364-7-701:2006	NOTE Harmonized as HD 60364-7-701:2007 (modified).

IEC 60702-1

NOTE Harmonized as EN 60702-1.

IEC 61643-12

NOTE Harmonized as CLC/TS 61643-12.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

LOW-VOLTAGE ELECTRICAL INSTALLATIONS –

Part 5-54: Selection and erection of electrical equipment – Earthing arrangements and protective conductors

FOREWORD

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International Standard IEC 60364-5-54 has been prepared by IEC technical committee 64: Electrical installations and protection against electric shock.

This third edition cancels and replaces the second edition, published in 2002, and constitutes a technical revision.

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

- clarification of the definition of protective conductor;
- improved specification of mechanical characteristics of the earth electrode;
- introduction of earth electrode for protection against electric shock and lightning protection;
- annexes describing concrete-embedded foundation earth electrodes and soil-embedded earth electrode.

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

FDIS	Report on voting
64/1755/FDIS	64/1766/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.

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

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

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

A list of all parts in the IEC 60364 series, under the general title: *Low-voltage electrical installations*, 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.

INTRODUCTION

Clause numbering is sequential, preceded by the number of this Part. Numbering of figures and tables takes the number of this part followed by a sequential number, i.e. Table 54.1, 54.2, etc. Numbering of figures and tables in annexes takes the letter of the annex, followed by the number of the part, followed by a sequential number, e.g. A.54.1, A.54.2, etc.

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LOW-VOLTAGE ELECTRICAL INSTALLATIONS –

Part 5-54: Selection and erection of electrical equipment – Earthing arrangements and protective conductors

541 General

541.1 Scope

This part of IEC 60364 addresses the earthing arrangements and protective conductors including protective bonding conductors in order to satisfy the safety of the electrical installation.

541.2 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 60364-4-41:2005, *Low-voltage electrical installations – Part 4-41: Protection for safety – Protection against electric shock*

IEC 60364-4-44:2007, *Low-voltage electrical installations – Part 4-44: Protection for safety – Protection against voltage disturbances and electromagnetic disturbances*

IEC 60364-5-51:2005, *Electrical installations of buildings – Part 5-51: Selection and erection of electrical equipment – Common rules*

IEC 60439-2, *Low-voltage switchgear and controlgear assemblies – Part 2: Particular requirements for busbar trunking systems (busways)*

IEC 61439-1, *Low-voltage switchgear and controlgear assemblies – Part 1: General rules*

IEC 61439-2, *Low-voltage switchgear and controlgear assemblies – Part 2: Power switchgear and controlgear assemblies*

IEC 60724, *Short-circuit temperature limits of electric cables with rated voltages of 1 kV ($U_m = 1,2$ kV) and 3 kV ($U_m = 3,6$ kV)*

IEC 60909-0, *Short-circuit currents in three-phase a.c. systems – Part 0: Calculation of currents*

IEC 60949, *Calculation of thermally permissible short-circuit currents, taking into account non-adiabatic heating effects*

IEC 61140:2001, *Protection against electric shock – Common aspects for installation and equipment*

IEC 61534-1, *Powertrack systems – Part 1: General requirements*

IEC 62305 (all parts) *Protection against lightning*

IEC 62305-3:2006, *Protection against lightning – Part 3: Physical damage to structures and life hazard*