PIKSEKAITSE. OSA 1: ÜLDPÕHIMÕTTED

Protection against lightning - Part 1: General principles

EESTI STANDARDIMIS- JA AKREDITEERIMISKESKUS
ESTONIAN CENTRE FOR STANDARDISATION AND ACCREDITATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN IEC 62305-1:2025 sisaldab Euroopa standardi EN IEC 62305-1:2024 ingliskeelset teksti.	This Estonian standard EVS-EN IEC 62305-1:2025 consists of the English text of the European standard EN IEC 62305-1:2024.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 25.10.2024.	Date of Availability of the European standard is 25.10.2024.
Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 29.020, 91.120.40

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 62305-1

October 2024

ICS 29.020; 91.120.40

Supersedes EN 62305-1:2011;
EN 62305-1:2011/AC:2016-11

English Version

Protection against lightning - Part 1: General principles (IEC 62305-1:2024)

Protection contre la foudre - Partie 1: Principes généraux (IEC 62305-1:2024)

Blitzschutz - Teil 1: Allgemeine Grundsätze (IEC 62305-1:2024)

This European Standard was approved by CENELEC on 2024-10-17. 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.

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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

Ref. No. EN IEC 62305-1:2024 E

European foreword

The text of document 81/737/FDIS, future edition 3 of IEC 62305-1, prepared by TC 81 "Lightning protection" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62305-1:2024.

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) 2025-10-31
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2027-10-31

This document supersedes EN 62305-1:2011 and all of its amendments and corrigenda (if any).

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.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 62305-1:2024 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 standard indicated:

IEC 62561 series	NOTE	Approved as EN IEC 62561 series
IEC 62305-2:2024	NOTE	Approved as EN IEC 62305-2:2024 (not modified)
IEC 62793	NOTE	Approved as EN IEC 62793
IEC 61400-24	NOTE	Approved as EN IEC 61400-24
IEC 61000-4-5	NOTE	Approved as EN 61000-4-5
IEC 61643-31	NOTE	Approved as EN 61643-31
IEC 62475	NOTE	Approved as EN 62475
IEC 60071-2:2023	NOTE	Approved as EN IEC 60071-2:2023 (not modified)
IEC 61643-21	NOTE	Approved as EN 61643-21

IEC 62305-1

Edition 3.0 2024-09

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Protection against lightning – Part 1: General principles

Protection contre la foudre – Partie 1: Principes généraux

IEC 62305-1:2024-09(en-fr)

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IEC 62305-1

Edition 3.0 2024-09

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Protection against lightning – Part 1: General principles

Protection contre la foudre – Partie 1: Principes généraux

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 29.020, 91.120.40

ISBN 978-2-8322-8002-7

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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PROTECTION AGAINST LIGHTNING –

Part 1: General principles

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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IEC 62305-1 has been prepared by IEC technical committee 81: Lightning protection. It is an International Standard.

This third edition cancels and replaces the second edition published in 2010. This edition constitutes a technical revision.

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

a) reference to the IEC 62561 series [1][1] is made in Annex D to provide a link to relevant lightning protection system components according to the IEC 62561 series;

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1 Numbers in square brackets refer to the Bibliography.

b) risk management introduces the concept of types of loss with public relevance;

c) the concept of frequency of damage that can impair the availability of the internal systems within the structure has been introduced;

d) surge currents due to lightning flashes have been more accurately specified for SPD dimensioning in low-voltage power systems and in telecommunication systems.

The text of this International Standard is based on the following documents:

Draft	Report on voting
81/737/FDIS	81/756/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 62305 series, published under the general title *Protection against lightning*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

INTRODUCTION

There are no devices or methods capable of modifying the natural weather phenomena to the extent that they can prevent lightning discharges. Lightning flashes to, or nearby, structures (or lines connected to the structures) are hazardous to people, to the structures themselves, their contents and installations as well as to lines. This is why the application of lightning protection measures is essential.

The need for protection, the economic benefits of installing protection measures, and the selection of adequate protection measures should be determined in terms of risk management. Risk management is the subject of IEC 62305-2 [2].

NOTE In Germany, the need for lightning protection is determined by, and the class of required LPS shall be selected according to, a national annex to the third edition of IEC 62305-1 (including an option for a risk assessment following the third edition of IEC 62305-2).

Protection measures considered in the IEC 62305 series have been proven to be effective in risk reduction.

All measures for protection against lightning form the overall lightning protection. For practical reasons the criteria for design, installation and maintenance of lightning protection measures are considered in two separate groups:

– the first group concerning protection measures to reduce physical damage and life hazard in a structure is given in IEC 62305-3;
– the second group concerning protection measures to reduce failures of electrical and electronic systems in a structure is given in IEC 62305-4.

The connection between the parts of the IEC 62305 series is illustrated in Figure 1.

NOTE The implementation of an IEC 62793 [3] compliant TWS in the protection measures for a structure can assist in reducing physical damage, life hazard, and failure of electrical and electronic systems.

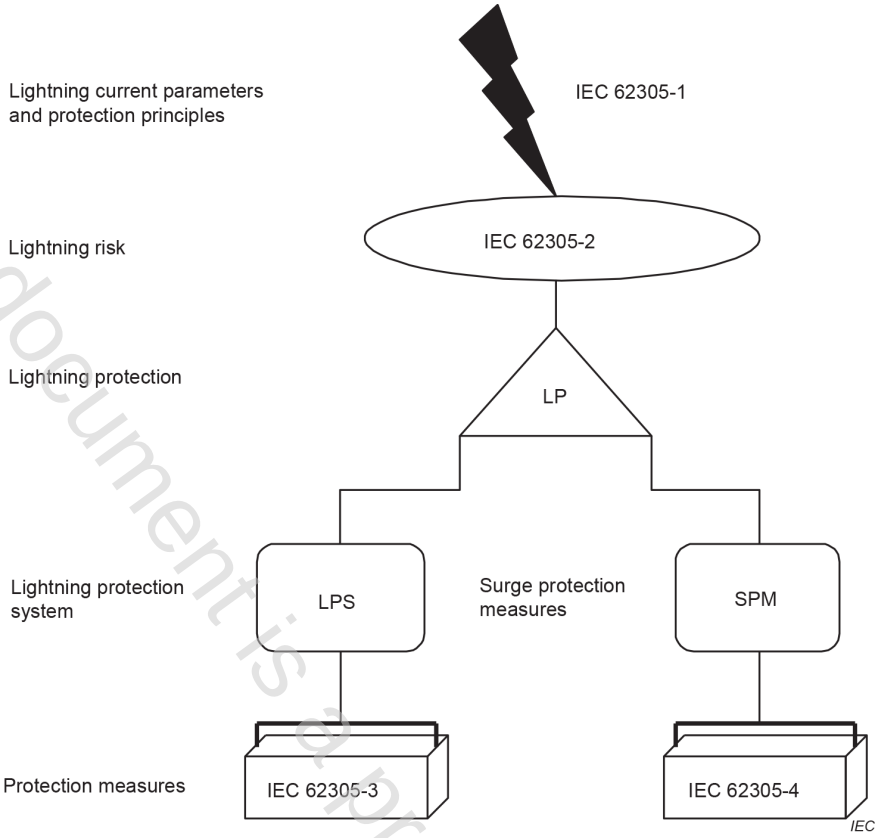

Figure 1 – Connection between the various parts of the IEC 62305 series

PROTECTION AGAINST LIGHTNING –

Part 1: General principles

1 Scope

This part of IEC 62305 provides general principles for the protection of structures against lightning, including their installations and contents, as well as persons.

The following cases are outside the scope of this document:

– railway systems;
– vehicles, ships, aircraft, offshore installations;
– underground high-pressure pipelines;
– pipe, power and telecommunication lines separated from the structure;
– nuclear power plants.

The IEC 62305 series should be considered as a minimum requirement for these structures.

Until any further information by CIGRE is available the lightning current parameters described in this document can be applied also for offshore installations.

NOTE 1 In these cases, structures usually fall under special regulations produced by various specialized authorities. For structures (subsidiary or others) not falling under such special regulations, the IEC 62305 series still applies.

NOTE 2 Lightning protection of wind turbines is also covered by IEC 61400-24 [4].

2 Normative references

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.

IEC 62305-3:2024, *Protection against lightning – Part 3: Physical damage to structures and life hazard*

IEC 62305-4:2024, *Protection against lightning – Part 4: Electrical and electronic systems within structures*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at https://www.electropedia.org/
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