

## **Piksekaitse. Osa 1: Üldpõhimõtted**

Protection against lightning - Part 1: General principles

EVS

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 62305-1:2011 sisaldab Euroopa standardi EN 62305-1:2011 ja selle paranduse AC:2016 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 31.03.2011 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 25.02.2011, parandusel AC 04.11.2016</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 62305-1:2011 consists of the English text of the European standard EN 62305-1:2011 and its corrigendum AC:2016.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 31.03.2011 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 is 25.02.2011, for corrigendum AC 04.11.2016</p> <p>The standard is available from Estonian standardisation organisation.</p>
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ICS 29.020, 91.120.40

piksekaitse, üldpõhimõtted

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English version

**Protection against lightning -  
Part 1: General principles  
(IEC 62305-1:2010, modified)**

Protection contre la foudre -  
Partie 1: Principes généraux  
(CEI 62305-1:2010, modifiée)

Blitzschutz -  
Teil 1: Allgemeine Grundsätze  
(IEC 62305-1:2010, modifiziert)

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**CENELEC**

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

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## Foreword

The text of document 81/370/FDIS, future edition 2 of IEC 62305-1, prepared by IEC TC 81, Lightning protection, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62305-1 on 2011-01-13.

This European Standard supersedes EN 62305-1:2006 + corr. Nov.2006.

This EN 62305-1:2011 includes the following significant technical changes with respect to EN 62305-1:2006 + corr. Nov.2006:

- 1) It no longer covers protection of services connected to structures.
- 2) Isolated interfaces are introduced as protection measures to reduce failure of electric and electronic systems.
- 3) First negative impulse current is introduced as a new lightning parameter for calculation purposes.
- 4) Expected surge overcurrents due to lightning flashes have been more accurately specified for low voltage power systems and for telecommunication systems.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

The following dates were fixed:

- |  |       |            |
|--|-------|------------|
| – latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement | (dop) | 2011-10-13 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn   | (dow) | 2014-01-13 |

Annex ZA has been added by CENELEC.

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## Endorsement notice

The text of the International Standard IEC 62305-1:2010 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:

- |                      |      |   |
|----------------------|------|---|
| [1] IEC 60664-1:2007 | NOTE | Harmonized as EN 60664-1:2007 (not modified). |
| [2] IEC 61000-4-5    | NOTE | Harmonized as EN 61000-4-5.                   |
| [7] IEC 61643-1      | NOTE | Harmonized as EN 61643-11.                    |
| [8] IEC 61643-21     | NOTE | Harmonized as EN 61643-21.                    |

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**Annex ZA**  
(normative)

**Normative references to international publications  
with their corresponding European publications**

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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 62305-2	2010	Protection against lightning - Part 2: Risk management	EN 62305-2	2011
IEC 62305-3	2010	Protection against lightning - Part 3: Physical damage to structures and life hazard	EN 62305-3	2011
IEC 62305-4	2010	Protection against lightning - Part 4: Electrical and electronic systems within structures	EN 62305-4	2011

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## 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.

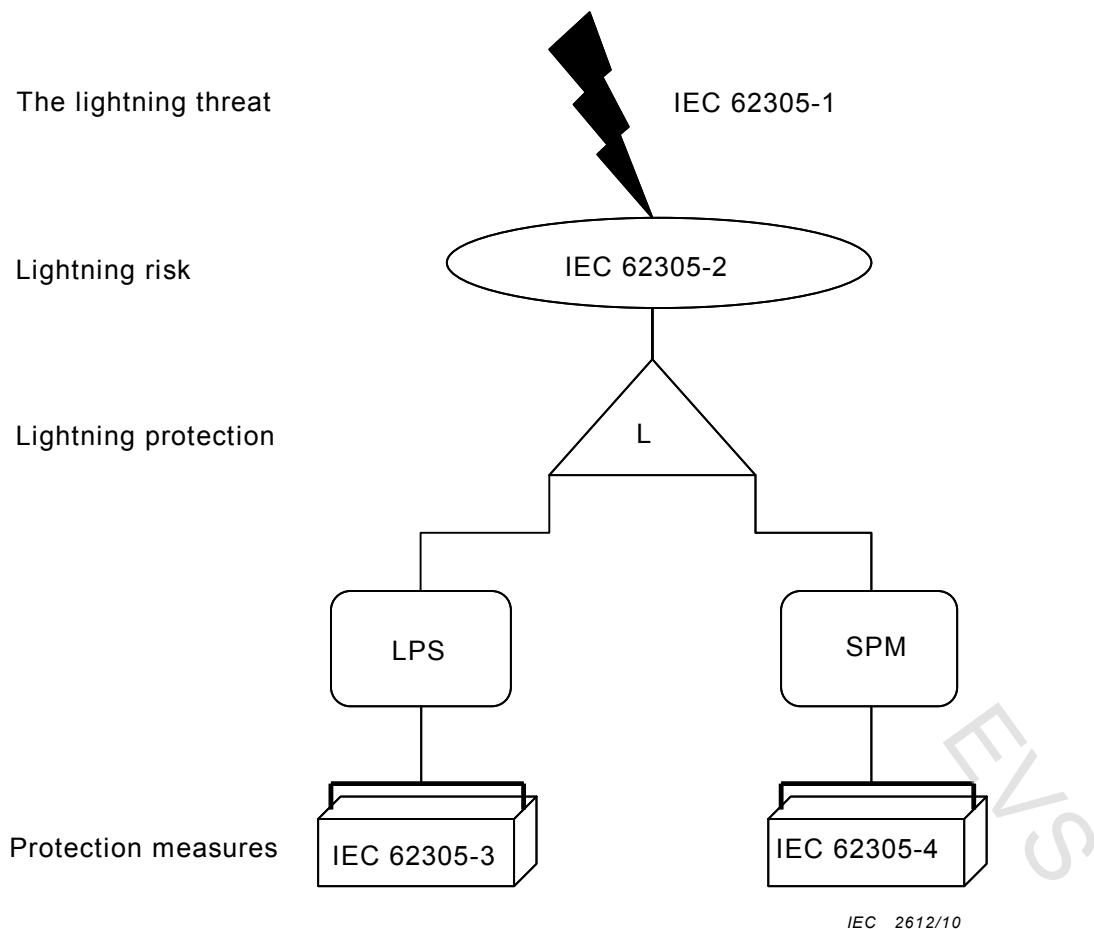
The need for protection, the economic benefits of installing protection measures and the selection of adequate protection measures should be determined in terms of risk management. Risk management is the subject of IEC 62305-2.

Protection measures considered in IEC 62305 are proved 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 IEC 62305 is illustrated in Figure 1.



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

# PROTECTION AGAINST LIGHTNING –

## Part 1: General principles

### 1 Scope

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

The following cases are outside the scope of this standard:

- railway systems;
- vehicles, ships, aircraft, offshore installations;
- underground high pressure pipelines;
- pipe, power and telecommunication lines placed outside the structure.

NOTE These systems usually fall under special regulations produced by various specialized authorities.

### 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 62305-2:2010, *Protection against lightning – Part 2: Risk management*

IEC 62305-3:2010, *Protection against lightning – Part 3: Physical damage to structures and life hazard*

IEC 62305-4:2010, *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.

#### 3.1

##### **lightning flash to earth**

electrical discharge of atmospheric origin between cloud and earth consisting of one or more strokes

#### 3.2

##### **downward flash**

lightning flash initiated by a downward leader from cloud to earth

NOTE A downward flash consists of a first impulse, which can be followed by subsequent impulses. One or more impulses may be followed by a long stroke.

#### 3.3

##### **upward flash**

lightning flash initiated by an upward leader from an earthed structure to cloud