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Zaščita pred delovanjem strele - 3. del: Fizična škoda na zgradbah in nevarnost za živa bitja (IEC 62305-3:2010, spremenjen)

Protection against lightning - Part 3: Physical damages to structures and life hazard

Blitzschutz - Teil 3: Schutz von baulichen Anlagen und Personen

Protection contre la foudre - Partie 3: Dommages physiques sur les structures et risques humains

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Ta slovenski standard je istoveten z: EN 62305-3:2011

ICS:

91.120.40

Zaščita pred strelo

Lightning protection

SIST EN 62305-3:2011

en

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EUROPEAN STANDARD
NORME EUROPÉENNE
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EN 62305-3

March 2011

ICS 29.020; 91.120.40

Supersedes EN 62305-3:2006 + corr. Nov.2006 + corr. Sep.2008 + A11:2009

English version

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

Protection contre la foudre -
Partie 3: Dommages physiques sur les
structures et risques humains
(CEI 62305-3:2010, modifiée)

Blitzschutz -
Teil 3: Schutz von baulichen Anlagen und
Personen
(IEC 62305-3:2010, modifiziert)

This European Standard was approved by CENELEC on 2011-01-02. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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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 the International Standard IEC 62305-3:2010, prepared by IEC TC 81, Lightning protection, together with common modifications prepared by the Technical Committee CENELEC TC 81X, Lightning protection, was submitted to the formal vote and was approved by CENELEC as EN 62305-3 on 2011-01-02.

This European Standard supersedes EN 62305-3:2006 + corr. Nov.2006 + corr. Sep.2008 + A11:2009.

This EN 62305-3:2011 includes the following significant technical changes with respect to EN 62305-3:2006 + corr. Nov.2006 + corr. Sep.2008 + A11:2009:

- 1) Minimum thicknesses of metal sheets or metal pipes given in Table 3 for air-termination systems are assumed as not able to prevent hot-spot problems.
- 2) Steel with electro-deposited copper is introduced as material suitable for LPS.
- 3) Some cross-sectional areas of LPS conductors were slightly modified.
- 4) For bonding purposes, isolating spark gaps are used for metal installations and SPD for internal systems.
- 5) Two methods – simplified and detailed – are provided for evaluation of separation distance.
- 6) Protection measures against injuries of living beings due to electric shock are considered also inside the structure.
- 7) Improved information for LPS in the case of structures with a risk of explosion are given in Annex D (normative).

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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) | 2012-01-02 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn | (dow) | 2014-01-02 |

Endorsement notice

The text of the International Standard IEC 62305-3:2010 was approved by CENELEC as a European Standard with agreed common modifications as given below.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

[2] IEC 61400-24 NOTE Harmonized as EN 61400-24.

COMMON MODIFICATIONS

Through the complete document:

Replace all references to IEC 62305 by references to EN 62305.

Replace all references to IEC 62561 by references to EN 50164.

2 Normative references

Replace this subclause by:

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.

EN 50164-1	Lightning Protection Components (LPC) – Part 1: Requirements for connection components
EN 50164-2	Lightning Protection Components (LPC) – Part 2: Requirements for conductors and earth electrodes
EN 50164-3	Lightning Protection Components (LPC) – Part 3: Requirements for isolating spark gaps
EN 50164-4	Lightning Protection Components (LPC) – Part 4: Requirements for conductor fasteners
EN 50164-5	Lightning Protection Components (LPC) – Part 5: Requirements for earth electrode inspection housings and earth electrode seals
EN 50164-6	Lightning Protection Components (LPC) – Part 6: Requirements for lightning strike counters
EN 50164-7	Lightning Protection Components (LPC) – Part 7: Requirements for earthing enhancing compounds

NOTE The above mentioned standards EN 50164 series will ultimately be replaced by EN 62561 series. EN 50164 series will still be valid for 72 months from the issuing date of each part of the EN 50164 series.

EN 60079-10-1:2009	Explosive atmospheres – Part 10-1: Classification of areas – Explosive gas atmospheres (IEC 60079-10-1:2009)
EN 60079-10-2:2009	Explosive atmospheres – Part 10-2: Classification of areas – Combustible dust atmospheres (IEC 60079-10-2:2009)
EN 60079-14:2008	Explosive atmospheres – Part 14: Electrical installations design, selection and erection (IEC 60079-14:2007)
EN 61557-4	Electrical safety in low voltage distribution systems up to 1 000 V a.c. and 1 500 V d.c. – Equipment for testing, measuring or monitoring of protective measures – Part 4: Resistance of earth connection and equipotential bonding (IEC 61557-4)
EN 61643-11	Low-voltage surge protective devices – Part 1: Surge protective devices connected to low-voltage power distribution systems – Requirements and tests (IEC 61643-1)
EN 61643-21	Low voltage surge protective devices – Part 21: Surge protective devices connected to telecommunications and signalling networks – Performance requirements and testing methods (IEC 61643-21)
EN 62305-1:2011	Protection against lightning – Part 1: General principles (IEC 62305-1:2010, modified)
EN 62305-2:2011	Protection against lightning – Part 2: Risk management (IEC 62305-2:2010, modified)
EN 62305-4:2011	Protection against lightning – Part 4: Electrical and electronic systems within structures (IEC 62305-4:2010, modified)

EN 62561 series ¹⁾	Lightning Protection System Components (LPSC) (IEC 62561 series)
EN 62561-1 ²⁾	Lightning Protection System Components (LPSC) – Part 1: Requirements for connection components (IEC 62561)
EN 62561-3 ²⁾	Lightning Protection System Components (LPSC) – Part 3: Requirements for isolating spark gaps (IEC 62561-3)
ISO 3864-1	Graphical symbols – Safety colours and safety signs – Part 1: Design principles for safety signs in workplaces and public areas

3 Terms and definitions

Definition 3.16

Add at the end of the paragraph: "... as defined in the EN 50164 series."

Definition 3.17

Add at the end of the paragraph: "... as defined in the EN 50164 series."

4 Lightning protection system (LPS)

4.3 Continuity of steelwork in reinforced concrete structures

Replace NOTE 2 by:

NOTE 2 When the continuity of steelwork in reinforced concrete is intended to be established by clamping, specifically designed clamps complying with and tested according to EN 50164-1, should be used.

5 External lightning protection system

5.5.1 General

After the first paragraph, **add** the following paragraph:

All components shall comply with the EN 50164 series.

5.5.3 Connections

In the 2nd paragraph, **replace** "the future IEC 62561-1" with "EN 50164-1".

5.6.2 Dimensions

Replace the first paragraph by:

Materials, configurations and minimum cross-sectional areas of air-termination conductors, air-termination rods, down-conductors and earth lead-in rods are given in Table 6 and shall comply with the requirements and tests according to the EN 50164 series.

Add at the beginning of the second paragraph "Materials, ..." and **replace** at the end of the paragraph "IEC 62561 series" with "EN 50164 series".

In Table 7, **delete** the NOTE "f".

¹⁾ In preparation.

²⁾ At draft stage.

Annex E (informative) Guidelines for the design, construction, maintenance and inspection of lightning protection systems

E.4.2.3.2 Mechanical design

In the first sentence of the NOTE, **replace** “may” with “should” and “IEC 62561” with “EN 50164”.

In the last paragraph, **replace** “could” with “should” and “IEC 62561” with “EN 50164”.

E.4.3.3 Welding or clamping to the steel-reinforcing rods

In the NOTE, **replace** “IEC 62561 series of standards are suitable” with “EN 50164 series of standards should be used”.

E.4.3.7 Down-conductors

Replace the 12th paragraph (i.e. after Figure E.9) by:

“If steel structures are used as down-conductors, every steel column should be connected to the steel reinforcing rods of the concrete foundation according to Figure E.7 by purposely designed bonding points complying with EN 50164 series.”

E.5.2.4.1 General information

Replace the first paragraph by:

“The maximum permissible temperature for a conductor will not be exceeded if its cross-section complies with Table 6 and the EN 50164 series.”

E.5.2.4.2 Non-isolated air-termination

After the 2nd paragraph, **add** the following NOTE:

NOTE For more details see EN 50164 series.
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E.5.5 Components

Replace the 1st paragraph by:

“Components of LPS should withstand the electromagnetic effects of lightning current and predictable accidental stresses without being damaged. This can be achieved by choosing components that have successfully been tested in accordance with the EN 50164 series.

All components shall comply with the EN 50164 series.”

E.5.6.1 Mechanical design

At the end of the 6th paragraph, **add** the following:

“...according to the EN 50164 series.”

E.5.6.2.1 Materials

At the end of the 1st line, **add** the following:

“and the EN 50164 series”

E.5.6.2.2.1 Metals in soil and air

Replace the NOTE by:

NOTE Isolating spark gaps having a protection level U_p of 2,5 kV and a minimum I_{imp} of 50 kA (10/350 μ s) complying with EN 50164-3 are suitable.

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Edition 2.0 2010-12

INTERNATIONAL STANDARD



Protection against lightning –
Part 3: Physical damage to structures and life hazard

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

PROTECTION AGAINST LIGHTNING –

Part 3: Physical damage to structures and life hazard

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 62305-3 has been prepared by IEC technical committee 81: Lightning protection.

This second edition cancels and replaces the first edition, published in 2006, and constitutes a technical revision.

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

- 1) Minimum thicknesses of metal sheets or metal pipes given in Table 3 for air-termination systems are assumed as not able to prevent hot-spot problems.
- 2) Steel with electro-deposited copper is introduced as material suitable for LPS.
- 3) Some cross-sectional areas of LPS conductors were slightly modified.
- 4) For bonding purposes, isolating spark gaps are used for metal installations and SPD for internal systems.