



SLOVENSKI STANDARD SIST EN IEC 62561-1:2023

01-julij-2023

Elementi za zaščito pred strelo (LPSC) - 1. del: Zahteve za spojne komponente (IEC 62561-1:2023)

Lightning protection system components (LPSC) - Part 1: Requirements for connection components (IEC 62561-1:2023)

Blitzschutzsystembauteile (LPSC) - Teil 1: Anforderungen an Verbindungsbauteile (IEC 62561-1:2023)

Composants des systèmes de protection contre la foudre (CSPF) - Partie 1: Exigences pour les composants de connexion (IEC 62561-1:2023)

Ta slovenski standard je istoveten z: **EN IEC 62561-1:2023**

ICS:

| | | |
|-----------|---------------------|----------------------|
| 29.120.20 | Spojni elementi | Connecting devices |
| 91.120.40 | Zaščita pred strelo | Lightning protection |

SIST EN IEC 62561-1:2023

en

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN IEC 62561-1

May 2023

ICS 29.020; 91.120.40

Supersedes EN 62561-1:2017

English Version

**Lightning protection system components (LPSC) - Part 1:
Requirements for connection components
(IEC 62561-1:2023)**

Composants des systèmes de protection contre la foudre
(CSPF) - Partie 1: Exigences pour les composants de
connexion
(IEC 62561-1:2023)

Blitzschutzsystembauteile (LPSC) - Teil 1: Anforderungen
an Verbindungsbauteile
(IEC 62561-1:2023)

This European Standard was approved by CENELEC on 2023-05-04. 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 CEN-CENELEC Management Centre 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 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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.



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

EN IEC 62561-1:2023 (E)**European foreword**

The text of document 81/721/FDIS, future edition 3 of IEC 62561-1, prepared by IEC/TC 81 "Lightning protection" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62561-1:2023.

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) 2024-02-04
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2026-05-04

This document supersedes EN 62561-1:2017 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.

iTeh STANDARD PREVIEW
Endorsement notice
(standards.itih.ai)

The text of the International Standard IEC 62561-1:2023 was approved by CENELEC as a European Standard without any modification.

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

IEC 62305 (series) NOTE Approved as EN 62305 (series)

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cencenelec.eu.

| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN/HD</u> | <u>Year</u> |
|--------------------|-------------|--|-------------------|-------------|
| IEC 60068-2-52 | 2017 | Environmental testing - Part 2-52: Tests - Test Kb: Salt mist, cyclic (sodium chloride solution) | EN IEC 60068-2-52 | 2018 |
| IEC 62561-2 | - | Lightning protection system components (LPSC) - Part 2: Requirements for conductors and earth electrodes | EN IEC 62561-2 | - |
| ISO 6957 | 1988 | Copper alloys; ammonia test for stress corrosion resistance | - | - |
| ISO 22479 | 2019 | Corrosion of metals and alloys - Sulfur dioxide test in a humid atmosphere (fixed gas method) | EN ISO 22479 | 2022 |



IEC 62561-1

Edition 3.0 2023-03

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Lightning protection system components (LPSC) –
Part 1: Requirements for connection components**

**Composants des systèmes de protection contre la foudre (CSPF) –
Partie 1: Exigences pour les composants de connexion**

<https://standards.iteh.ai/catalog/standards/sist/88323a9b-39e1-4d24-a252-2edf8af1f283/sist-en-iec-62561-1-2023>

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 29.020; 91.120.40

ISBN 978-2-8322-6650-2

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

| | |
|--|----|
| FOREWORD..... | 4 |
| INTRODUCTION..... | 6 |
| 1 Scope..... | 7 |
| 2 Normative references | 7 |
| 3 Terms and definitions | 7 |
| 4 Classification..... | 11 |
| 4.1 According to the ability to withstand lightning current..... | 11 |
| 4.2 According to the installation location..... | 11 |
| 4.3 According to the mechanical behaviour of connection components | 11 |
| 4.4 According to whether or not a connection is permanent | 11 |
| 5 Requirements | 11 |
| 5.1 General..... | 11 |
| 5.2 Documentation and installation instructions | 11 |
| 5.3 Marking..... | 12 |
| 5.3.1 Content of marking | 12 |
| 5.3.2 Durability and legibility..... | 12 |
| 5.4 Lightning current carrying capability..... | 12 |
| 5.5 Static mechanical withstand capability | 12 |
| 5.6 Permanent connection | 12 |
| 5.7 Non-permanent connection | 13 |
| 5.8 Dismantling of test joints..... | 13 |
| 5.9 Expansion piece | 13 |
| 6 Tests | 13 |
| 6.1 General test conditions | 13 |
| 6.2 Documentation and installation instructions | 14 |
| 6.2.1 General test conditions | 14 |
| 6.2.2 Acceptance criteria | 14 |
| 6.3 Marking test..... | 14 |
| 6.3.1 General test conditions | 14 |
| 6.3.2 Acceptance criteria | 14 |
| 6.4 Preparation of the specimen | 14 |
| 6.5 Conditioning and ageing | 19 |
| 6.6 Electrical test..... | 19 |
| 6.6.1 General test conditions | 19 |
| 6.6.2 Acceptance criteria | 20 |
| 6.7 Static mechanical withstand-capability test | 21 |
| 7 Electromagnetic compatibility (EMC) | 21 |
| 8 Structure and content of the test report..... | 22 |
| 8.1 General..... | 22 |
| 8.2 Report identification | 22 |
| 8.3 Specimen description..... | 22 |
| 8.4 Conductor | 22 |
| 8.5 Standards and references | 23 |
| 8.6 Test procedure..... | 23 |
| 8.7 Testing equipment description | 23 |
| 8.8 Measuring instruments description..... | 23 |

| | | |
|-----------------------|---|----|
| 8.9 | Results and parameters recorded | 23 |
| 8.10 | Statement of pass or fail | 23 |
| Annex A (normative) | Summary of the requirements and corresponding tests | 24 |
| Annex B (informative) | Typical connection arrangements for various LPSC | 25 |
| Annex C (normative) | Flow chart of tests for connection components | 26 |
| Annex D (normative) | Conditioning and ageing for connection components | 27 |
| D.1 | General | 27 |
| D.2 | Salt mist treatment | 27 |
| D.3 | Humid sulphurous atmosphere treatment | 27 |
| D.4 | Ammonia atmosphere treatment | 27 |
| Annex E (normative) | Reduced test procedures | 28 |
| Bibliography | | 29 |
| Figure 1 | – Basic arrangement of specimen with cross-connection component | 15 |
| Figure 2 | – Basic arrangement of specimen with parallel connection component | 16 |
| Figure 3 | – Basic arrangement of specimen with expansion piece or bridging component | 17 |
| Figure 4 | – Basic arrangement of specimen with equipotential bonding bar | 18 |
| Figure 5 | – Basic arrangement of specimen with clamped connection of reinforcing rods | 18 |
| Figure 6 | – Basic arrangement of specimen with welded, brazed or exothermic connections of reinforcing rods | 19 |
| Figure 7 | – Basic arrangement for contact measurement of expansion piece or bridging component | 20 |
| Figure 8 | – Examples of sequence of loosening of bolts and screws | 21 |
| Figure B.1 | – Typical arrangements for various LPSC | 25 |
| Figure C.1 | – Flowchart of tests for connection components | 26 |
| Table 1 | – Lightning impulse current (I_{imp}) parameters | 20 |
| Table A.1 | – Requirements and corresponding tests | 24 |
| Table E.1 | – Reduced test procedures for connection components complying with IEC 62561-1:2017 or IEC 62561-1:2012 | 28 |

INTERNATIONAL ELECTROTECHNICAL COMMISSION

LIGHTNING PROTECTION SYSTEM COMPONENTS (LPSC) –**Part 1: Requirements for connection components**

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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 62561-1 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 2017. This edition constitutes a technical revision.

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

- a) definitions of connection types mentioned in the scope have been added;
- b) location classification has been expanded in detail;
- c) the document has been updated in line with the new edition of ISO 22479:2019 on humid sulphurous atmosphere treatment;
- d) a new normative Annex E for reduced test procedures has been introduced.

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

| Draft | Report on voting |
|-------------|------------------|
| 81/721/FDIS | 81/724/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 62561 series, published under the general title *Lightning protection system components (LPSC)*, 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,
- replaced by a revised edition, or
- amended.

[SIST EN IEC 62561-1:2023](https://standards.iteh.ai/catalog/standards/sist/88323a9b-39e1-4d24-a252-2edf8af1f283/sist-en-iec-62561-1-2023)

<https://standards.iteh.ai/catalog/standards/sist/88323a9b-39e1-4d24-a252-2edf8af1f283/sist-en-iec-62561-1-2023>

INTRODUCTION

This part of IEC 62561 deals with the requirements and tests for lightning protection system components (LPSC) used for the installation of a lightning protection system (LPS) designed and implemented according to the IEC 62305 series.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN IEC 62561-1:2023](https://standards.iteh.ai/catalog/standards/sist/88323a9b-39e1-4d24-a252-2edf8af1f283/sist-en-iec-62561-1-2023)

<https://standards.iteh.ai/catalog/standards/sist/88323a9b-39e1-4d24-a252-2edf8af1f283/sist-en-iec-62561-1-2023>