

<b>STN</b>	<b>Súčasti systému ochrany pred bleskom (LPSC) Časť 3: Požiadavky na oddel'ovacie iskriská (ISGs)</b>	<b>STN EN IEC 62561-3</b>  35 7605
------------	---	--

Lightning protection system components (LPSC) - Part 3: Requirements for isolating spark gaps (ISGs)

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 10/23

Obsahuje: EN IEC 62561-3:2023, IEC 62561-3:2023

Oznámením tejto normy sa od 09.08.2026 ruší  
STN EN 62561-3 (35 7605) z februára 2018

**137624**

---

Úrad pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky, 2023  
Slovenská technická norma a technická normalizačná informácia je chránená zákonom č. 60/2018 Z. z. o technickej normalizácii  
v znení neskorších predpisov.

EUROPEAN STANDARD

**EN IEC 62561-3**

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2023

ICS 91.120.40

Supersedes EN 62561-3:2017

English Version

**Lightning protection system components (LPSC) - Part 3:  
Requirements for isolating spark gaps (ISGs)  
(IEC 62561-3:2023)**

Composants des systèmes de protection contre la foudre  
(CSPF) - Partie 3: Exigences pour les éclateurs d'isolement  
(IEC 62561-3:2023)

Blitzschutzsystembauteile (LPSC) - Teil 3: Anforderungen  
an Trennfunkengestrecken  
(IEC 62561-3:2023)

This European Standard was approved by CENELEC on 2023-08-09. 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 62561-3:2023 (E)

### European foreword

The text of document 81/727/FDIS, future edition 3 of IEC 62561-3, prepared by IEC/TC 81 "Lightning protection" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62561-3:2023.

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) 2024-05-09
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2026-08-09

This document supersedes EN 62561-3:2017 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.

### Endorsement notice

The text of the International Standard IEC 62561-3:2023 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 60079-10 (series) NOTE Approved as EN 60079-10 (series)

IEC 60529 NOTE Approved as EN 60529

IEC 61643-11 NOTE Approved as EN 61643-11

IEC 62305-3 NOTE Approved as EN 62305-3

IEC 62305-4 NOTE Approved as EN 62305-4

## 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](http://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 60068-2-75	2014	Environmental testing - Part 2-75: Tests - Test Eh: Hammer tests	EN 60068-2-75	2014
IEC 62305-1	2010	Protection against lightning - Part 1: General principles	EN 62305-1	2011
-	-		/AC	2016-11
IEC 62561-1	-	Lightning protection system components (LPSC) - Part 1: Requirements for connection components	EN IEC 62561-1	-
ISO 4892-2	2013	Plastics - Methods of exposure to laboratory light sources - Part 2: Xenon-arc lamps	EN ISO 4892-2	2013
ISO 4892-3	2016	Plastics - Methods of exposure to laboratory light sources - Part 3: Fluorescent UV lamps	EN ISO 4892-3	2016
ISO 4892-4	2013	Plastics - Methods of exposure to laboratory light sources - Part 4: Open-flame carbon-arc lamps	-	-
ISO 6957	1988	Copper alloys; ammonia test for stress corrosion resistance	-	-
ISO 22479	2019	Corrosion of metals and alloys - Sulphur dioxide test in a humid atmosphere (fixed gas method)	EN ISO 22479	2022



IEC 62561-3

Edition 3.0 2023-07

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

---

**Lightning protection system components (LPSC) –  
Part 3: Requirements for isolating spark gaps (ISGs)**

**Composants des systèmes de protection contre la foudre (CSPF) –  
Partie 3: Exigences pour les éclateurs d'isolement**





**THIS PUBLICATION IS COPYRIGHT PROTECTED**  
**Copyright © 2023 IEC, Geneva, Switzerland**

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Secretariat  
3, rue de Varembe  
CH-1211 Geneva 20  
Switzerland

Tel.: +41 22 919 02 11  
[info@iec.ch](mailto:info@iec.ch)  
[www.iec.ch](http://www.iec.ch)

#### About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

#### About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

#### IEC publications search - [webstore.iec.ch/advsearchform](http://webstore.iec.ch/advsearchform)

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, ...). It also gives information on projects, replaced and withdrawn publications.

#### IEC Just Published - [webstore.iec.ch/justpublished](http://webstore.iec.ch/justpublished)

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

#### IEC Customer Service Centre - [webstore.iec.ch/csc](http://webstore.iec.ch/csc)

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: [sales@iec.ch](mailto:sales@iec.ch).

#### IEC Products & Services Portal - [products.iec.ch](http://products.iec.ch)

Discover our powerful search engine and read freely all the publications previews. With a subscription you will always have access to up to date content tailored to your needs.

#### Electropedia - [www.electropedia.org](http://www.electropedia.org)

The world's leading online dictionary on electrotechnology, containing more than 22 300 terminological entries in English and French, with equivalent terms in 19 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

---

#### A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

#### A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

#### Recherche de publications IEC -

#### [webstore.iec.ch/advsearchform](http://webstore.iec.ch/advsearchform)

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études, ...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

#### IEC Just Published - [webstore.iec.ch/justpublished](http://webstore.iec.ch/justpublished)

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et une fois par mois par email.

#### Service Clients - [webstore.iec.ch/csc](http://webstore.iec.ch/csc)

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: [sales@iec.ch](mailto:sales@iec.ch).

#### IEC Products & Services Portal - [products.iec.ch](http://products.iec.ch)

Découvrez notre puissant moteur de recherche et consultez gratuitement tous les aperçus des publications. Avec un abonnement, vous aurez toujours accès à un contenu à jour adapté à vos besoins.

#### Electropedia - [www.electropedia.org](http://www.electropedia.org)

Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 300 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 19 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.



IEC 62561-3

Edition 3.0 2023-07

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

**Lightning protection system components (LPSC) –  
Part 3: Requirements for isolating spark gaps (ISGs)**

**Composants des systèmes de protection contre la foudre (CSPF) –  
Partie 3: Exigences pour les éclateurs d'isolement**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

ICS 91.120.40

ISBN 978-2-8322-7129-2

**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 .....	8
4 Classification.....	9
4.1 According to the capability of ISGs to withstand lightning current.....	9
4.2 According to ISGs installation location .....	9
5 Requirements .....	10
5.1 General.....	10
5.2 Environmental requirements .....	10
5.3 Documentation and installation instructions .....	10
5.4 Lightning current carrying capability.....	10
5.5 Rated impulse sparkover voltage .....	10
5.6 Rated withstand voltage.....	10
5.6.1 Rated DC withstand voltage.....	10
5.6.2 Rated power frequency withstand voltage.....	10
5.7 Isolation resistance.....	11
5.8 Marking.....	11
6 Tests .....	11
6.1 General test conditions .....	11
6.2 Ultraviolet (UV) light test.....	12
6.2.1 General test conditions .....	12
6.2.2 Acceptance criteria .....	12
6.3 Corrosion resistance test .....	12
6.3.1 General test conditions .....	12
6.3.2 Acceptance criteria .....	12
6.4 Impact test.....	12
6.4.1 General test conditions .....	12
6.4.2 Acceptance criteria .....	13
6.5 Electrical tests .....	13
6.5.1 Isolation resistance.....	13
6.5.2 Withstand voltage .....	13
6.5.3 Rated impulse sparkover voltage .....	14
6.5.4 Lightning current.....	14
6.6 Documentation and installation instructions .....	15
6.6.1 General conditions.....	15
6.6.2 Acceptance criteria .....	15
6.7 Marking test.....	15
6.7.1 General test conditions .....	15
6.7.2 Acceptance criteria .....	16
7 Electromagnetic compatibility (EMC) .....	16
8 Structure and content of the test report.....	16
8.1 General.....	16
8.2 Report identification .....	16
8.3 Specimen description.....	17



8.4	Standards and references .....	17
8.5	Test procedure.....	17
8.6	Testing equipment description .....	17
8.7	Measuring instruments description.....	17
8.8	Results and parameters recorded .....	17
8.9	Statement of pass or fail .....	17
Annex A (normative) Flowchart for testing ISGs .....		18
Annex B (normative) Resistance to corrosion tests for ISGs .....		20
B.1	General.....	20
B.2	Salt mist treatment.....	20
B.3	Humid sulphurous atmosphere treatment .....	20
B.4	Ammonia atmosphere treatment.....	20
Annex C (normative) Environmental test for outdoor isolating spark gaps – Resistance to ultraviolet light .....		21
C.1	General.....	21
C.2	Test .....	21
C.3	First alternative test to C.2.....	21
C.4	Second alternative test to C.2 .....	21
Annex D (normative) Applicability of previous tests .....		22
Bibliography.....		23
Figure A.1 – Flowchart of the sequence of tests for ISGs .....		19
Table 1 – Lightning impulse current ( $I_{imp}$ ) parameters <sup>a</sup> .....		15
Table D.1 – Differences in the requirements for ISGs complying with IEC 62561-3:2017.....		22

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

---

### **LIGHTNING PROTECTION SYSTEM COMPONENTS (LPSC) –**

### **Part 3: Requirements for isolating spark gaps (ISGs)**

#### 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 62561-3 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) alignment with the latest edition of ISO 22479 relating to humid sulphurous atmosphere treatment;
- b) addition of a new normative Annex D for the applicability of previous tests.

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

Draft	Report on voting
81/727/FDIS	81/729/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](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/publications](http://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](http://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.

## INTRODUCTION

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

## LIGHTNING PROTECTION SYSTEM COMPONENTS (LPSC) –

### Part 3: Requirements for isolating spark gaps (ISGs)

#### 1 Scope

This part of IEC 62561 specifies the requirements and tests for isolating spark gaps (ISGs) for lightning protection systems.

ISGs can be used to indirectly bond a lightning protection system to other nearby metalwork where a direct bond is not permissible for functional reasons.

Typical applications include the connection to

- earth-termination systems of power installations,
- earth-termination systems of telecommunication systems,
- auxiliary earth electrodes of voltage-operated, earth fault circuit breakers,
- rail earth electrodes of power and DC railways,
- measuring earth electrodes for laboratories,
- installations with cathodic protection and stray current systems,
- service entry masts for low-voltage overhead cables,
- bypassing insulated flanges and insulated couplings of pipelines.

Applications where follow currents occur are not included.

Extra requirements for the components can be necessary for LSCs intended for use in hazardous atmospheres.

NOTE 1 In CENELEC member countries, testing requirements of components for explosive atmospheres are specified in CLC/TS 50703-2.

NOTE 2 Testing of components for an explosive atmosphere (as defined in the IEC 60079-10 series) is not covered by this document.

#### 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 60068-2-52:2017, *Environmental testing – Part 2-52: Tests – Test Kb: Salt mist, cyclic (sodium chloride solution)*

IEC 60068-2-75:2014, *Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests*

IEC 62305-1:2010, *Protection against lightning – Part 1: General principles*

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

ISO 4892-2:2013, *Plastics – Methods of exposure to laboratory light sources – Part 2: Xenon-arc lamps*

ISO 4892-3:2016, *Plastics – Methods of exposure to laboratory light sources – Part 3: Fluorescent UV lamps*

ISO 4892-4:2013, *Plastics – Methods of exposure to laboratory light sources – Part 4: Open-flame carbon-arc lamps*

ISO 6957:1988, *Copper alloys – Ammonia test for stress corrosion resistance*

ISO 22479:2019, *Corrosion of metals and alloys – Sulphur dioxide test in a humid atmosphere (fixed gas method)*

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**