

---

**Visokonapetostne stikalne in krmilne naprave - 214. del: Razvrščanje notranjih oblokov pri stikalnih in krmilnih napravah AC, nameščenih na kovinskih drogovih, za naznačene napetosti nad 1 kV do vključno 52 kV (IEC 62271-214:2024)**

High-voltage switchgear and controlgear - Part 214: Internal arc classification for AC metal-enclosed pole-mounted switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV (IEC 62271-214:2024)

Hochspannungs-Schaltgeräte und -Schaltanlagen - Teil 214: Störlichtbogenklassifikation für metallgekapselte, mastmontierte Schaltanlagen für Bemessungsspannungen über 1 kV bis einschließlich 52 kV (IEC 62271-214:2024)

Appareillage à haute tension - Partie 214 : Classification arc interne des appareillages sous enveloppe métallique à courant alternatif de tensions assignées supérieures à 1 kV et inférieures ou égales à 52 kV montées sur poteau (IEC 62271-214:2024)

<https://standards.iteh.ai/catalog/standards/sist/e1960d24-7a03-435d-986e-4b9dcbb80ef0/sist-en-iec-62271-214-2024>

**Ta slovenski standard je istoveten z: EN IEC 62271-214:2024**

---

**ICS:**

29.130.10	Visokonapetostne stikalne in krmilne naprave	High voltage switchgear and controlgear
-----------	--	---

**SIST EN IEC 62271-214:2024**

**en**



EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN IEC 62271-214**

May 2024

ICS 29.130.10

Supersedes EN IEC 62271-214:2019

English Version

High-voltage switchgear and controlgear - Part 214: Internal arc classification for AC metal-enclosed pole-mounted switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV  
(IEC 62271-214:2024)

Appareillage à haute tension - Partie 214 : Classification arc interne des appareillages sous enveloppe métallique à courant alternatif de tensions assignées supérieures à 1 kV et inférieures ou égales à 52 kV montées sur poteau  
(IEC 62271-214:2024)

Hochspannungs-Schaltgeräte und -Schaltanlagen - Teil 214: Störlichtbogenklassifikation für metallgekapselte, mastmontierte Schaltanlagen für Bemessungsspannungen über 1 kV bis einschließlich 52 kV  
(IEC 62271-214:2024)

This European Standard was approved by CENELEC on 2024-05-21. 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 62271-214:2024 (E)****European foreword**

The text of document 17C/924/FDIS, future edition 2 of IEC 62271-214, prepared by SC 17C "Assemblies" of IEC/TC 17 "High-voltage switchgear and controlgear" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62271-214:2024.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2025-02-21 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2027-05-21 document have to be withdrawn

This document supersedes EN IEC 62271-214:2019 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 62271-214:2024 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 62271-200:2021 NOTE Approved as EN IEC 62271-200:2021 (not modified)

IEC/TR 62271-307:2015 NOTE Approved as CLC IEC/TR 62271-307:2019 (not modified)

IEC 60038:2009 NOTE Approved as EN 60038:2011

IEC 60059:1999 NOTE Approved as EN 60059:1999 (not modified)

IEC 60059:1999/A1:2009 NOTE Approved as EN 60059:1999/A1:2009 (not modified)

## 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 60050-151	2001	International Electrotechnical Vocabulary - Part 151: Electrical and magnetic devices	-	-
+ AMD1	2013		-	-
+ AMD2	2014		-	-
+ AMD3	2019		-	-
+ AMD4	2020		-	-
+ AMD5	2021		-	-
IEC 60050-441	1984	International Electrotechnical Vocabulary. Switchgear, controlgear and fuses	-	-
+AMD1	2000			
IEC 62271-1	2017	High-voltage switchgear and controlgear - Part 1: Common specifications for alternating current switchgear and controlgear	EN 62271-1	2017
+ AMD1	2021		+ A1	2021
IEC 62271-200	2021	High-voltage switchgear and controlgear - Part 200: AC metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV	EN IEC 62271-200	2021





IEC 62271-214

Edition 2.0 2024-04

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE



**High-voltage switchgear and controlgear –  
Part 214: Internal arc classification for AC metal-enclosed pole-mounted  
switchgear and controlgear for rated voltages above 1 kV and up to and  
including 52 kV**

**Appareillage à haute tension –  
Partie 214 : Classification arc interne des appareillages sous enveloppe  
métallique à courant alternatif de tensions assignées supérieures à 1 kV et  
inférieures ou égales à 52 kV montées sur poteau**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

ICS 29.130.10

ISBN 978-2-8322-8431-5

**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
3.1 General terms and definitions .....	8
3.8 Index of definitions.....	10
4 Normal and special service conditions .....	11
5 Ratings.....	11
5.1 General.....	11
5.2 Rated voltage ( $U_r$ ) .....	11
5.2.1 General .....	11
5.3 Rated insulation level ( $U_d$ , $U_p$ , $U_s$ ) .....	11
5.4 Rated frequency ( $f_r$ ).....	12
5.101 Ratings of the internal arc classification (IAC).....	12
5.101.1 General .....	12
5.101.2 Rated approach distance ( $D_{AP}$ ).....	12
5.101.3 Rated arc fault currents ( $I_A$ , $I_{Ae}$ ).....	12
5.101.4 Rated arc fault duration ( $t_A$ , $t_{Ae}$ ) .....	12
6 Design and construction .....	12
6.11 Nameplate .....	12
6.11.2 Application.....	12
6.101 Internal arc fault.....	13
6.102 Enclosure .....	13
7 Type tests .....	14
7.1 General.....	14
7.1.1 Basics .....	14
7.1.2 Information for identification of test object .....	15
7.1.3 Information to be included in type-test reports .....	15
7.101 Internal arc type test.....	16
7.101.1 General .....	16
7.101.2 Test conditions .....	16
7.101.3 Arrangement of the equipment.....	17
7.101.4 Indicators (for assessing the thermal effects of the gases).....	19
7.101.5 Arrangement of indicators.....	19
7.101.6 Test parameters .....	20
7.101.7 Test procedure .....	21
7.101.8 Criteria to pass the test .....	26
7.101.9 Transferability of the test results.....	26
8 Routine tests .....	27
9 Guide to the selection of switchgear and controlgear (informative) .....	27
9.1 General.....	27
9.101 Internal arc fault.....	27
9.101.1 General .....	27
9.101.2 Causes and preventive measures .....	28



9.101.3	Supplementary protective measures .....	28
9.101.4	Considerations for the selection and installation .....	29
9.101.5	Internal arc test .....	29
9.101.6	IAC designation .....	29
10	Information to be given with enquiries, tenders and orders (informative) .....	30
10.1	General.....	30
11	Transport, storage, installation, operation instruction and maintenance .....	30
11.1	General.....	30
11.2	Conditions during transport, storage and installation .....	31
11.3	Installation .....	31
11.3.1	General .....	31
11.101	Maintenance .....	31
12	Safety.....	31
12.1	General.....	31
13	Influence of the product on the environment .....	31
Annex A	(normative) Identification of the test objects .....	32
A.1	General.....	32
A.2	Data.....	32
A.3	Drawings.....	32
Bibliography	.....	33
Figure 1	– Examples of enclosures and compartment(s) in different arrangements .....	14
Figure 2	– Test arrangement for pole-mounted switchgear and controlgear.....	18
Figure 3	– Horizontal indicator.....	19
Figure 4	– Flow-chart for the choice of arc initiation depending on the construction .....	24
Table 1	– Nameplate information .....	13
Table 2	– Parameters for internal arc fault test according to enclosure and compartment construction.....	23
Table 3	– Locations, causes and examples of measures to decrease the probability of internal arc faults .....	28
Table 4	– Single-phase-to-earth arc fault current depending on the network neutral earthing .....	30

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

**Part 214: Internal arc classification for AC metal-enclosed pole-mounted switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV**

## 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) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at <https://patents.iec.ch>. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 62271-214 has been prepared by subcommittee 17C: Assemblies, of IEC technical committee 17: High voltage switchgear and controlgear. It is an International Standard.

This second edition cancels and replaces the first edition published in 2019. This edition constitutes a technical revision.

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

- a) indicators positioning update;
- b) neutral earthing connection of the test circuit for three-phase tests;
- c) general review for consistency with IEC 62271-200, Ed.3.0:2021.

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

Draft	Report on voting
17C/924/FDIS	17C/931/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).

This standard shall be read in conjunction with IEC 62271-1, second edition, published in 2017, to which it refers, and which is applicable unless otherwise specified in this standard. In order to simplify the indication of corresponding requirements, the same numbering of clauses and subclauses is used as in IEC 62271-1. Amendments to these clauses and subclauses are given under the same references whilst additional subclauses are numbered from 101. Any clause with the term "Not applicable" relates to the clause not being relevant to IEC 62271-214, and does not infer the clause is or is not relevant for its applicable switchgear standard.

A list of all parts of the IEC 62271 series, published under the general title *High-voltage switchgear and controlgear*, 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, or
- revised.

[SIST EN IEC 62271-214:2024](https://standards.iec.ch/catalog/standards/sist/e1960d24-7a03-435d-986e-4b9dcbb80ef0/sist-en-iec-62271-214-2024)

<https://standards.iec.ch/catalog/standards/sist/e1960d24-7a03-435d-986e-4b9dcbb80ef0/sist-en-iec-62271-214-2024>