SLOVENSKI STANDARD
oSIST prEN IEC 62271-214:2022

01-oktober-2022

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

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

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

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

Ta slovenski standard je istoveten z: **prEN IEC 62271-214:2022**

ICS:

29.130.10	Visokonapetostne stikalne in krmilne naprave	High voltage switchgear and controlgear

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17C/856/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER: **IEC 62271-214 ED2**	
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IEC SC 17C : ASSEMBLIES	
SECRETARIAT: Germany	SECRETARY: Mr Mark Kuschel
OF INTEREST TO THE FOLLOWING COMMITTEES: TC 17,SC 17A	PROPOSED HORIZONTAL STANDARD: ☐ Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: ☒ EMC ☐ ENVIRONMENT ☒ QUALITY ASSURANCE ☒ SAFETY	
☒ SUBMITTED FOR CENELEC PARALLEL VOTING **Attention IEC-CENELEC parallel voting** The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting. The CENELEC members are invited to vote through the CENELEC online voting system.	☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING

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TITLE:

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

PROPOSED STABILITY DATE: 2030

NOTE FROM TC/SC OFFICERS:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

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

FOREWORD

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International Standard IEC 62271-214 has been prepared by subcommittee 17C Assemblies, of IEC technical committee 17: Switchgear and controlgear.

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:

- indicators positioning update
- neutral earthing connection of the test circuit for three-phase tests
- general review for consistency with IEC 62271-200 Ed.3.0 already published

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

FDIS	Report on voting
17C/XXX/CD	----

139

140 Full information on the voting for the approval of this International Standard can be found in the
141 report on voting indicated in the above table.

142 This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

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

150 A list of all parts of the IEC 62271 series, published under the general title *High-voltage*
151 *switchgear and controlgear*, can be found on the IEC website.

152 The committee has decided that the contents of this document will remain unchanged until the
153 stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to
154 the specific document. At this date, the document will be

155 • reconfirmed,
156 • withdrawn,
157 • replaced by a revised edition, or
158 • amended.

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INTRODUCTION

IEC 62271-214 has been developed due to the requirement to remove IAC Type C designated pole-mounted switchgear from IEC 62271-200. IEC 62271-214 is to be considered independent of IEC 62271-200, however it is still related to other product standards of the IEC 62271 series.

Only open terminal pole-mounted switchgear has been considered within this document.

This equipment relates to operation in three-phase, two-phase and single-phase systems.

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

1 Scope

This part of IEC 62271 specifies requirements for internal arc classification of metal-enclosed pole-mounted AC switchgear installations with rated voltages above 1 kV and up to and including 52 kV with service frequencies up to and including 60 Hz. This document is applicable to three-phase, two-phase and single-phase open terminal equipment. Enclosures may include fixed and removable components and may be filled with fluid (liquid or gas) to provide insulation.

NOTE For the use of this document high-voltage (IEC 60050-601:1985, 601-01-27) is the rated voltage above 1 000 V. However, medium voltage (IEC 60050-601:1985, 601-01-28) is commonly used for distribution systems with voltages above 1 kV and generally applied up to and including 52 kV; refer to [1] of the Bibliography.

This document does not preclude that other equipment may be included in the same enclosure. In such a case, any possible influence of that equipment on the switchgear and controlgear is to be taken into account.

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 60050-151:2001, *International Electrotechnical Vocabulary (IEV) – Part 151: Electrical and magnetic devices*

IEC 60050-441:1984, *International Electrotechnical Vocabulary (IEV) – Part 441: Switchgear, controlgear and fuses*
IEC 60050-441:1984/AMD1:2000

*IEC 6*2271-1:2017, High-voltage switchgear and controlgear – Part 1: Common specifications for alternating current switchgear and controlgear
IEC 62271-1:2017/AMD1:2021

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62271-1, IEC 60050-151 and IEC 60050-441 as well as the following apply.

NOTE The classification system for definitions of IEC 62271-1:2017 is followed. Terms and definitions are referenced and prioritized in the following order:

- Clause 3 of this document;
- IEC 62271-1:2017;
- IEC 60050-441;
- EC 60050-151.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://electropedia.org
- ISO Online browsing platform: available at http://www.iso.org/obp

NOTE Additional definitions are classified so as to be aligned with the classification system used in IEC 60050-441.

3.1 General terms and definitions

3.1.101
metal-enclosed switchgear and controlgear
switchgear and controlgear assemblies with an external metal enclosure intended to be earthed and completely assembled, except for external connections

[SOURCE: IEC 60050-441:1984, 441-12-04, “complete” has been replaced by “completely assembled” – NOTE has been deleted]

3.1.102
enclosure
part of an assembly providing a specified degree of protection of equipment against external influences and a specified degree of protection against approach to or contact with live parts and against contact with moving parts

[SOURCE: IEC 60050-441:1984, 441-13-01, <of an assembly> has been deleted]

3.1.103
high-voltage compartment
compartment of switchgear and controlgear, containing high-voltage conducting parts, enclosed except for openings necessary for interconnection, control or ventilation, where one segment of the compartment can be part of the outer earthed metallic enclosure

3.1.104
component
essential part of the high-voltage or earthing circuits of pole-mounted switchgear and controlgear which serves a specific function (e.g. circuit-breaker, disconnector, switch, fuse, instrument transformer, bushing, busbar)

3.1.105
main circuit
all the high-voltage conductive parts of pole-mounted switchgear and controlgear included in a circuit which is intended to carry the rated continuous current

[SOURCE: IEC 60050-441:1984, 441-13-02, modified – “high voltage” has been added, “assembly” has been substituted by “pole-mounted switchgear and controlgear” and “transmit electrical energy” has been substituted by “carry the rated continuous current”.]

3.1.106
earthing circuit
conductors, connections, and the conducting parts of earthing devices intended to connect the high-voltage conductive parts to the earthing system of the installation

Note 1 to entry: Parts of metallic enclosures connected to the earthing system can be part of the earthing circuit.

3.1.107
normal operating condition
in service condition with all covers properly closed and secured

Note 1 to entry: The term “in service” implies “under live conditions”

[SOURCE: IEC 62271-200:2021, 3.1.106, modified – "<of an assembly>" and "doors and" have been removed and Note to entry has been added]

3.1.108
pressure relief device
device incorporated as part of an enclosure or compartment intended to operate to prevent excessive pressure in the enclosure or compartment

3.1.109
fluid-filled compartment
high-voltage compartment of pole-mounted switchgear and controlgear filled with a fluid, either gas, other than ambient air, or liquid, for insulation purposes

3.1.110
pole
vertical single member support in wood, concrete, steel or other material, with one end buried in the ground, either directly or by means of a foundation

Note 1 to entry: The term pole as defined here is not to be mixed up with the use of the same term as synonymous for phase as used in other standards.

[SOURCE: IEC 60050-466:1990, 466-07-01, modified – Note 1 to entry has been added]

3.1.111
pole-mounted switchgear and controlgear
metal-enclosed switchgear and controlgear, typically connected to overhead lines, installed on one or more poles or equivalent structures at a defined height, with restricted accessibility by installation out of reach

3.1.112
internal arc classified switchgear and controlgear
IAC
metal-enclosed switchgear and controlgear for which prescribed criteria, for protection of authorized persons and the general public beneath the apparatus, are met in the event of internal arc for specified installation conditions, as demonstrated by type tests

Note 1 to entry: The internal arc classification is described by the characteristics given from 3.1.114 to 3.1.116.

[SOURCE: IEC 62271-200:2011, 3.6.117, modified – "authorized" and "and general public beneath the apparatus" have been added, "assembly" has been changed by "metal-enclosed switchgear and controlgear"]

3.1.113
arc fault current
three-phase and where applicable the single-phase-to-earth RMS value of the internal arc fault current for which the switchgear and controlgear is designed to protect persons in the event of an internal arc

[SOURCE: IEC 62271-200:2011, 3.132.3]

3.1.114
arc fault duration
duration of the internal arc fault current for which the switchgear and controlgear is designed to protect persons in the event of an internal arc

[SOURCE: IEC 62271-200:2011, 3.132.4]

3.1.115
approach distance
distance between the test object and indicators arranged in an IAC test

3.1.116
arc mitigation device
device dedicated to reacting to internal arc fault conditions to decrease the arc energy

[SOURCE: CIGRE TECHNICAL BROCHURE 686:2017, *Mitigating the effects of arcs in M.V. Switchgear*][5][1]

3.8 Index of definitions

A – C

E – F

H – I

M – N

P

[1] Numbers in square brackets refer to the bibliography.