



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

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OF INTEREST TO THE FOLLOWING COMMITTEES: TC 17, SC 17A	PROPOSED HORIZONTAL STANDARD: <input type="checkbox"/> Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: <input checked="" type="checkbox"/> EMC <input type="checkbox"/> ENVIRONMENT <input checked="" type="checkbox"/> QUALITY ASSURANCE <input checked="" type="checkbox"/> SAFETY	
<input checked="" type="checkbox"/> SUBMITTED FOR CENELEC PARALLEL VOTING <input type="checkbox"/> 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

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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 [prEN IEC 62271-214:2022](https://standards.iteh.ai/catalog/standards/sist/e1960d24-7a03-435d-986e-4b9dcbb80ef0/osist-pren-iec-62271-214-2022)

158 • amended. <https://standards.iteh.ai/catalog/standards/sist/e1960d24-7a03-435d-986e-4b9dcbb80ef0/osist-pren-iec-62271-214-2022>

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INTRODUCTION

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

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

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

167

168

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[oSIST prEN IEC 62271-214:2022](https://standards.iteh.ai/catalog/standards/sist/e1960d24-7a03-435d-986e-4b9dcbb80ef0/osist-pren-iec-62271-214-2022)

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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

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177 **1 Scope**

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

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

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

189 **2 Normative references**

190 The following referenced documents are indispensable for the application of this document. For
191 dated references, only the edition cited applies. For undated references, the latest edition of
192 the referenced document (including any amendments) applies.

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

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

197 IEC 60050-441:1984/AMD1:2000

198

199 *IEC 62271-1:2017*, High-voltage switchgear and controlgear – Part 1: Common specifications
200 for alternating current switchgear and controlgear

201 *IEC 62271-1:2017/AMD1:2021*

202 **3 Terms and definitions**

203 For the purposes of this document, the terms and definitions given in IEC 62271-1, IEC 60050-
204 151 and IEC 60050-441 as well as the following apply.

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

207 - Clause 3 of this document;

208 - IEC 62271-1:2017;

209 - IEC 60050-441;

210 - EC 60050-151.

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

- 213 • IEC Electropedia: available at <http://electropedia.org>
- 214 • ISO Online browsing platform: available at <http://www.iso.org/obp>

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

217 3.1 General terms and definitions

218 3.1.101

219 metal-enclosed switchgear and controlgear

220 switchgear and controlgear assemblies with an external metal enclosure intended to be earthed
221 and completely assembled, except for external connections

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

224

225 3.1.102

226 enclosure

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

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

231 3.1.103

232 high-voltage compartment

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

236 3.1.104

237 component

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

241 3.1.105

242 main circuit

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

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

248 3.1.106

249 earthing circuit

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

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

253

254 3.1.107

255 normal operating condition

256 in service condition with all covers properly closed and secured

257

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

259

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

3.1.108**pressure relief device**

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

3.1.109**fluid-filled compartment**

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

3.1.110**pole**

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

274 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
275 for phase as used in other standards.

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

3.1.111**pole-mounted switchgear and controlgear**

278 metal-enclosed switchgear and controlgear, typically connected to overhead lines, installed on
279 one or more poles or equivalent structures at a defined height, with restricted accessibility by
280 installation out of reach
281

3.1.112**internal arc classified switchgear and controlgear****IAC**

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

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

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

3.1.113**arc fault current**

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

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

3.1.114**arc fault duration**

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

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

303 **3.1.115**
 304 **approach distance**
 305 distance between the test object and indicators arranged in an IAC test

306 **3.1.116**
 307 **arc mitigation device**
 308 device dedicated to reacting to internal arc fault conditions to decrease the arc energy

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

311 **3.8 Index of definitions**

312 **A – C**

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¹ Numbers in square brackets refer to the bibliography.