
Sestavi nizkonapetostnih stikalnih in krmilnih naprav - 4. del: Posebne zahteve za sestave na gradbiščih (ACS)

Low-voltage switchgear and controlgear assemblies - Part 4: Particular requirements for assemblies for construction sites (ACS)

Niederspannungs-Schaltgerätekombinationen - Teil 4: Besondere Anforderungen für Baustromverteiler (BV)

Ensembles d'appareillage à basse tension - Partie 4: Exigences particulières pour ensembles de chantiers (EC)

Ta slovenski standard je istoveten z: prEN IEC 61439-4:2022

ICS:

| | | |
|-----------|---|--|
| 29.130.20 | Nizkonapetostne stikalne in krmilne naprave | Low voltage switchgear and controlgear |
| 91.200 | Gradbena tehnologija | Construction technology |

oSIST prEN IEC 61439-4:2022 **en**

**iTeh STANDARD
PREVIEW
(standards.iteh.ai)**

oSIST prEN IEC 61439-4:2022

<https://standards.iteh.ai/catalog/standards/sist/517668e2-5f19-4625-8de9-0e5421e111c4/osist-pren-iec-61439-4-2022>



121B/151/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

| | |
|--|---|
| PROJECT NUMBER: IEC 61439-4 ED2 | |
| DATE OF CIRCULATION: 2022-05-13 | CLOSING DATE FOR VOTING: 2022-08-05 |
| SUPERSEDES DOCUMENTS: 121B/142/CD, 121B/149/CC | |

| | |
|---|---|
| IEC SC 121B : LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR ASSEMBLIES | |
| SECRETARIAT: Germany | SECRETARY: Mr Jörg Hußmann |
| OF INTEREST TO THE FOLLOWING COMMITTEES: TC 64, SC 121A | 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 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 | |
| <p>Attention IEC-CENELEC parallel voting</p> <p>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.</p> <p>The CENELEC members are invited to vote through the CENELEC online voting system.</p> | |

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

TITLE:

Low-voltage switchgear and controlgear assemblies - Part 4: Particular requirements for assemblies for construction sites (ACS)

PROPOSED STABILITY DATE: 2026

NOTE FROM TC/SC OFFICERS:

Copyright © 2022 International Electrotechnical Commission, IEC. All rights reserved. It is permitted to download this electronic file, to make a copy and to print out the content for the sole purpose of preparing National Committee positions. You may not copy or "mirror" the file or printed version of the document, or any part of it, for any other purpose without permission in writing from IEC.

CONTENTS

| | | | |
|----|--|---|----|
| 1 | | | |
| 2 | | | |
| 3 | 1 | Scope | 5 |
| 4 | 2 | Normative references | 5 |
| 5 | 3 | Terms and definitions | 6 |
| 6 | 3.1 | General terms..... | 6 |
| 7 | 3.2 | Constructional units of ASSEMBLIES..... | 6 |
| 8 | 3.3 | External design of ASSEMBLIES | 6 |
| 9 | 3.5 | Conditions of installation of ASSEMBLIES..... | 7 |
| 10 | 4 | Symbols and abbreviations | 8 |
| 11 | 5 | Interface characteristics..... | 8 |
| 12 | 6 | Information | 8 |
| 13 | 7 | Service conditions | 10 |
| 14 | 8 | Constructional requirements | 10 |
| 15 | 9 | Performance requirements..... | 13 |
| 16 | 10 | Design verification | 13 |
| 17 | 11 | Routine verification..... | 16 |
| 18 | 101 | Particular features of ACS | 16 |
| 19 | Annex C (informative) | User information template | 20 |
| 20 | Annex N (informative) | List of notes concerning certain countries..... | 27 |
| 21 | Annex AA (Void) | | 28 |
| 22 | | | |
| 23 | Figure 101 – Impact test using striking element..... | 15 | |
| 24 | Table 101 – Values of assumed loading | 18 | |
| 25 | Table C.1 – Items subject to agreement between the ASSEMBLY manufacturer and the user..... | 20 | |
| 26 | Table D.1 – List of design verifications to be performed | 24 | |
| 27 | | | |
| 28 | | | |
| 29 | | | |
| 30 | | | |
| 31 | | | |

iTeh STANDARD
PREVIEW
(standards.iteh.ai)

oSIST prEN IEC 61439-4:2022
<https://standards.iteh.ai/catalog/standards/sist/517668e2-5f19-4625-8de9-0e5421e111c4/osist-pren-iec-61439-4-2022>

32 INTERNATIONAL ELECTROTECHNICAL COMMISSION

33

34

35

36

37

38

39

40

41

—————

LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR ASSEMBLIES –

Part 4: Particular requirements for assemblies for construction sites (ACS)

FOREWORD

42

43

44

45

46

47

48

49

50

51

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.

52

53

54

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.

55

56

57

58

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.

59

60

61

62

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.

63

64

65

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.

66

67

68

69

70

71

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.

72

73

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.

74

75

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.

76

77

78

International Standard IEC 61439-4 has been prepared by subcommittee 17D: Low-voltage switchgear and controlgear assemblies, of IEC technical committee 17: Switchgear and controlgear.

79

80

This first edition of IEC 61439-4 cancels and replaces the second edition of IEC 60439-4 (2004) and constitutes a technical revision.

81

82

This edition includes the following significant technical changes with respect to the last edition of IEC 60439-4:

83

84

- modification of the title as "Part 4: Particular requirements for assemblies for construction sites (ACS)"

85

- alignment on IEC 61439-1 regarding the structure and technical content, as applicable;

86

- to allow comparison with tested ACS.

87 The text of this standard is based on the following documents:

| FDIS | Report on voting |
|--------------|------------------|
| 17D/460/FDIS | 17D/469/RVD |

88
89 Full information on the voting for the approval of this standard can be found in the report on
90 voting indicated in the above table.

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

92 This standard is to be read in conjunction with IEC 61439-1. The provisions of the general
93 rules dealt with in IEC 61439-1 (hereinafter referred to as Part 1) are only applicable to this
94 standard insofar as they are specifically cited. When this standard states “addition”,
95 “modification” or “replacement”, the relevant text in Part 1 is to be adapted accordingly.

96 Subclauses that are numbered with a 101 (102, 103, etc.) suffix are additional to the same
97 subclause in Part 1.

98 Tables and figures in this Part 4 that are new are numbered starting with 101.

99 New annexes in this Part 4 are lettered AA, BB, etc.

100 In this standard, terms written in small capitals are defined in Clause 3.

101 The reader's attention is drawn to the fact that Annex AA lists all of the “in-some-country”
102 clauses on differing practices of a less permanent nature relating to the subject of this
103 standard.

104 A list of all parts of the IEC 61439 series, under the general title *Low-voltage switchgear and*
105 *controlgear assemblies*, can be found on the IEC website.

106 The committee has decided that the contents of this publication will remain unchanged until
107 the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data
108 related to the specific publication. At this date, the publication will be

- 109 • reconfirmed,
- 110 • withdrawn,
- 111 • replaced by a revised edition, or
- 112 • amended.

113

114

115
116
117
118
119
120
121

LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR ASSEMBLIES –

Part 4: Particular requirements for assemblies for construction sites (ACS)

122 **1 Scope**

123 NOTE Throughout this standard, the abbreviation ACS (ASSEMBLY for construction site, see 3.1.101) is used for
124 a low-voltage switchgear and controlgear assembly intended for use on construction and similar sites.

125 This part of 61439 defines the specific requirements of ACS as follows:

- 126 – ASSEMBLIES for which the rated voltage does not exceed 1 000 V in case of AC or 1 500 V
127 in case of DC;
- 128 – ASSEMBLIES where the nominal primary voltage and the nominal secondary voltage of
129 transformers incorporated in ACS are within the limits specified above;
- 130 – ASSEMBLIES intended for use on construction sites, both indoors and outdoors, i.e.
131 temporary places of work to which the public do not generally have access and where
132 building construction, installation, repairs, alteration or demolition of property (buildings)
133 or civil engineering (public works) or excavation or any other similar operations are carried
134 out;
- 135 – transportable (semi-fixed) or mobile ASSEMBLIES with enclosure.

136 The manufacture and/or assembly may be carried out other than by the original manufacturer.

137 This standard does not apply to individual devices and self-contained components, such as
138 motor starters, fuse switches, electronic equipment, etc. which will comply with the relevant
139 product standards. <https://standards.iteh.ai/catalog/standards/sist/517668e2-5f19-4625-8de9-0e5421e111c4/osist-pren-iec-61439-4-2022>

140 This standard does not apply to ASSEMBLIES for use in the administrative centres of
141 construction sites (offices, cloakrooms, ASSEMBLY rooms, canteens, restaurants, dormitories,
142 toilets, etc.).

143 Requirements for electrical protection provided by equipment manufactured according to this
144 International Standard are given in IEC 60364-7-704.

145 **2 Normative references**

146 This clause of Part 1 is applicable except as follows:

147 *Addition:*

148 IEC 60068-2-27:2008, *Environmental testing – Part 2-27: Tests – Test Ea and guidance:*
149 *Shock*

150 IEC 60068-2-42:2003, *Environmental testing – Part 2-42: Tests – Test Kc: Sulphur dioxide*
151 *test for contacts and connections*

152 IEC 60364-7-704, 2017, *Low-voltage electrical installations – Part 7-704: Requirements for*
153 *special installations or locations – Construction and demolition site installations*

154 IEC 61140, 2016, *Protection against electric shock – Common aspects for installation and*
155 *equipment*

196 – or to stand on a horizontal surface supported by feet or legs (articulated or not) or by a
197 mounting not forming part of the ACS (see 3.4.2 of Part 1)

198 *Modifications:*

199 **3.5 Conditions of installation of ASSEMBLIES**

200 **3.5.1**

201 **ASSEMBLY for indoor installation**

202 This term of Part 1 does not apply (see 3.1.101).

203 **3.5.2**

204 **ASSEMBLY for outdoor installation**

205 This term of Part 1 does not apply (see 3.1.101).

206 **3.5.3**

207 **stationary ASSEMBLY**

208 This term of Part 1 does not apply.

209 **3.5.4**

210 **movable ASSEMBLY**

211 This term of Part 1 does not apply.

212 *Additional terms:*

213 **3.5.101**

214 **transportable ACS**

215 **semi-fixed ACS**

216 ACS intended for use in a place where it is not permanently fixed; its location may vary during
217 work on the same site. When the equipment shall be moved to another place, it is first
218 disconnected from the supply.

219 **3.5.102**

220 **mobile ACS**

221 ACS capable of being moved as work advances on the site, without being disconnected from
222 the supply

223

224 *Additional terms:*

225 **3.101 Function of the ACS**

226 **3.101.1**

227 **incoming supply function**

228 suitability for connection of the ACS either to electricity public supply network or to the
229 transformer substation or to on site generator

230 **3.101.2**

231 **metering function**

232 suitability for the metering of electrical energy consumed on the site

233 **3.101.3**

234 **distribution function**

235 suitability to provide the distribution and protection of electrical supply on the construction site
236 by means of terminal connection or socket-outlets

ITeH STANDARD
PREVIEW
(standards.iteh.ai)

oSIST prEN IEC 61439-4:2022
http://www.iteh.ai/catalog/standards/sist/57c617c5-8de9-0e5421e111c4/osist-pren-iec-61439-4-2022

237 **3.101.4**
238 **transformer function**
239 suitability to provide means for transformer voltages or to provide measures of electrical
240 protection

241 Note 1 to entry: Details for their requirements are given in 101.1.

242 **4 Symbols and abbreviations**

243 This clause of Part 1 is applicable.

244 **5 Interface characteristics**

245 This clause of Part 1 is applicable except as follows.

246 **5.3.1 Rated current of the ASSEMBLY (I_{nA})**

247 *Replacement of title and text:*

248 **5.3.1 Rated current of an ACS (I_{nA})**

249 The rated current of an ACS is that of its incoming circuit.

250 This current shall be carried without the temperature rise of the individual parts exceeding the
251 limits specified in 9.2 of Part 1.

252 **5.4 Rated diversity factor (RDF)**

253 *Addition:*

254 The assumed loading of the outgoing circuits of the ACS or group of outgoing circuits shall be
255 declared by the ASSEMBLY manufacturer and may be based on the values in Table 101.

256 When the manufacturer does not declare any RDF the values of Table 101 apply.

257 **5.6 Other characteristics**

258 *Replacement:*

259 The following characteristics shall be declared:

- 260 a) the function(s) assigned by the manufacturer (see 3.101);
- 261 b) the external design (see 3.3);
- 262 c) the mobility (see 3.5.101 and 3.5.102);
- 263 d) the degree of protection (see 8.2);
- 264 e) the method of mounting, for example fixed or removable parts (see 8.5.1 and 8.5.2);
- 265 f) protection against electric shock (see 8.4);
- 266 g) the resistance to corrosion (see 10.2.2.101);
- 267 h) special service conditions, if applicable (see 7.2);
- 268 i) electromagnetic compatibility (EMC) classification (see Annex J of Part 1).

269 **6 Information**

270 This clause of Part 1 is applicable except as follows.

271 **6.1 ASSEMBLY designation marking**272 *Replacement of title and text:*273 **6.1 ACS designation marking**

274 The ASSEMBLY manufacturer shall provide each ACS with one or more labels, marked in a
 275 durable manner and located in a place such that they are visible and legible when the ACS is
 276 installed and in operation.

277 Compliance is checked according to the test of 10.2.7 and by inspection.

278 The following information regarding the ACS shall be provided on the label(s):

- 279 a) ASSEMBLY manufacturer's name or trade mark (see 3.10.2);
- 280 b) type designation or identification number or any other means of identification, making it
 281 possible to obtain relevant information from the ASSEMBLY manufacturer;
- 282 c) means of identifying date of manufacture;
- 283 d) IEC 61439-4;
- 284 e) type of current (and the frequency in the case of AC);
- 285 f) rated voltage (U_n) (of the ACS) (see 5.2.1);
- 286 g) rated current of the ACS (I_{nA}) (see 5.3.1);
- 287 h) degree of protection (see 8.2);
- 288 i) the weight where this exceeds 30 kg.

289 If the indication of the name or trademark of the manufacturer appears on the ACS it need not
 290 be given on the nameplate.

291 **6.2.1 Information relating to the ASSEMBLY**292 *Replacement of title and text:*293 **6.2.1 Information relating to the ACS**

294 The following additional information, where applicable, shall be provided in the ASSEMBLY
 295 manufacturer's technical documentation supplied with the ACS:

- 296 a) rated operational voltage (U_e) (of a circuit) (see 5.2.2);
- 297 b) rated impulse withstand voltage (U_{imp}) (see 5.2.4);
- 298 c) rated insulation voltage (U_i) (see 5.2.3);
- 299 d) rated current of each circuit (I_{nc}) (see 5.3.2);
- 300 e) rated peak withstand current (I_{pk}) (see 5.3.4);
- 301 f) rated short-time withstand current (I_{cw}) together with its duration (see 5.3.4);
- 302 g) rated conditional short-circuit current (I_{cc}) (see 5.3.5);
- 303 h) rated frequency (f_n) (see 5.5);
- 304 i) rated diversity factor(s) (RDF) (see 5.4);
- 305 j) functions (see 3.101);
- 306 k) all necessary information relating to the other declared classifications and characteristics
 307 (see 5.6);
- 308 l) the short-circuit withstand strength and characteristics of short-circuit protective device(s)
 309 (see 9.3.2);
- 310 m) overall dimensions (including projections e.g handles, covers, doors).

311 6.2.2 Instructions for handling, installation, operation and maintenance

312 *Addition:*

313 The manufacturer of the ACS should specify in its technical documentation supplied with the
314 ACS the other types of assemblies which may be connected to it. This information should
315 indicate whether the compatibility is based upon the type of system earthing employed and/or
316 on the need for co-ordination of the electrical protection within the complete installation.

317 The manufacturer should furnish the appropriate documentation for the purpose to maintain
318 the protective measures and the co-ordination of the protective devices within the complete
319 installation.

320 7 Service conditions

321 This clause of Part 1 is applicable except as follows.

322 *Modifications:*

323 7.1.2 Pollution degree

324 *Replacement of the last paragraph with:*

325 Only pollution degrees 3 and 4 are applicable.

326 The microenvironment may be reduced to pollution degree 2 if the degree of protection of the
327 enclosure is at least IP5X and care is taken to avoid condensation.

328 7.2 Special service conditions

329 *Addition of the following new item:*
330 m) heavily polluted atmosphere.

331 8 Constructional requirements

332 This clause of Part 1 is applicable except as follows.

333 8.1.1 General

334 *Addition:*

335 All the apparatus shall be placed inside the enclosure fitted with such removable panels,
336 cover plates or doors as may be required for connection or maintenance with the possible
337 exception of the items mentioned in 8.1.01 provided that they withstand the service conditions
338 of Clause 7 and the requirements of 8.1.2 and 8.1.6.

339 8.1.2 Protection against corrosion

340 *Replacement:*

341 Protection against corrosion shall be ensured by the use of suitable materials or by protective
342 coatings to the exposed surface taking account of the normal service conditions (see 7.1)
343 and/or special service condition (see 7.2). Compliance to this requirement is checked by the
344 test of 10.2.2.