

SLOVENSKI STANDARD
oSIST prEN IEC 62271-3:2026
01-februar-2026

Visokonapetostne stikalne in krmilne naprave - 3. del: Digitalni vmesniki, ki temeljijo na IEC 61850

High-voltage switchgear and controlgear - Part 3: Digital interfaces based on IEC 61850

Hochspannungs-Schaltgeräte und -Schaltanlagen - Teil 3: Digitale Schnittstellen nach IEC 61850

iTeh Standards
Appareillage à haute tension - Partie 3: Interfaces numériques basées sur l'IEC 61850
(<https://standards.iteh.ai>)

Ta slovenski standard je istoveten z: prEN IEC 62271-3:2025

[oSIST prEN IEC 62271-3:2026](#)

<https://standards.iteh.ai/catalog/standards/sist/a93b52d6-216b-4131-acb2-92161e4888da/osist-pren-iec-62271-3-2026>

ICS:

29.130.10	Visokonapetostne stikalne in krmilne naprave	High voltage switchgear and controlgear
35.200	Vmesniška in povezovalna oprema	Interface and interconnection equipment

oSIST prEN IEC 62271-3:2026

en



17/1189/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER:

IEC 62271-3 ED3

DATE OF CIRCULATION:

2025-12-05

CLOSING DATE FOR VOTING:

2026-02-27

SUPERSEDES DOCUMENTS:

17/1159/CD, 17/1170A/CC

IEC TC 17 : HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR

SECRETARIAT:

Sweden

SECRETARY:

Mr Arjan Bronsveld

OF INTEREST TO THE FOLLOWING COMMITTEES:

SC 17A, TC 38, TC 57, TC 77, TC 95

HORIZONTAL FUNCTION(S):

ASPECTS CONCERNED:

Electromagnetic Compatibility, Safety

 SUBMITTED FOR CENELEC PARALLEL VOTING NOT 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.

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

oSIST prEN IEC 62271-3:2026

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.

Recipients of this document are invited to submit, with their comments, notification of any relevant "In Some Countries" clauses to be included should this proposal proceed. Recipients are reminded that the CDV stage is the final stage for submitting ISC clauses. (SEE [AC/22/2007](#) OR [NEW GUIDANCE DOC](#)).

TITLE:

High-voltage switchgear and controlgear – Part 3: Digital interfaces based on IEC 61850

PROPOSED STABILITY DATE: 2032

NOTE FROM TC/SC OFFICERS:

Copyright © 2025 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

FOREWORD	4
INTRODUCTION	6
0.1 General	6
0.2 Position of this standard in relation to the IEC 61850 series	6
0.3 Position of this standard in relation to IEC 60255-216-2	6
1. Scope	7
1.1. General	7
1.1.1. Particular subjects within the scope of this standard:	8
1.1.2. Particular subjects outside the scope of this standard:	8
1.2. Data model Namespace name and version	8
1.3. Data model Namespace Code Component distribution	9
2. Normative references	10
3. Terms and definitions	11
4. Normal and special service conditions	15
5. Ratings and classifications / logical node classes	16
5.1. General	16
5.2. Package LNGroupX	17
5.2.1. General	17
5.2.2. Classes list	18
5.2.3. LN: Circuit breaker Name: XCBRExt	18
5.2.4. LN: Circuit switch Name: XSWIExt	20
5.3. LNs on the process level of a high-voltage switchgear	21
5.4. Communication services	23
5.4.1. Conformance classes	23
5.4.2. ACSI basic conformance statement	23
5.4.3. ACSI models conformance statement	25
5.4.4. ACSI service conformance statement	27
5.5. Timing requirements	27
5.5.1. General	27
5.5.2. Opening and closing times for circuit-breakers	29
5.6. Cyber security	32
5.7. Performance requirements	32
5.7.1. Performance classes	32
5.7.2. Dependability	32
5.7.3. Maximum expansion of the network	33
6. Design and construction	33
6.1. General	33
6.1.1. Typical location of switchgear controllers and communication devices	33
6.1.2. Typical system topology	36
6.1.3. Typical controller system redundancy	39
6.2. Technological boundaries	39
6.2.1. General	39
6.2.2. Interface point	40
6.2.3. Transmission systems	40
6.2.4. Human machine interface	40

6.3. Mechanical requirements	40
6.3.1. Mechanical stresses	40
6.3.2. Degree of protection provided by enclosures	40
6.3.3. Degree of protection for connectors	40
6.3.4. Accessibility	41
6.4. Electrical requirements	41
6.5. EMC	41
6.6. Electronic nameplates	41
6.7. Implementation of IEC 61850 interface	41
7. Type tests	42
7.1. General	42
7.2. Switchgear communication interface conformance tests	42
7.3. Time measurement of switchgear	43
7.3.1. Circuit-breakers	43
7.3.2. Other switchgear	46
8. Routine tests	46
9. Information to be given with enquiries, tenders and orders	47
10. Rules for transport, storage, installation, operation and maintenance	47
11. Safety	47
Annex A (normative) Test overview table	48
Annex B (normative) Electronic nameplates	49
B.1 General	49
B.2 Electronic nameplate for circuit breaker	49
B.3 Electronic nameplate for switchgear other than circuit breakers	49
Annex C (informative) Test procedures	52
C.1 Performance type testing – operation time	52
C.2 Performance type testing – make and break time	52
Annex D (informative) Communication device – use case examples	54
Annex E (informative) Specific model to highlight the scope of standard IEC 62271-3	56
Annex F (informative) Treatment of three-position switches	57
Annex G (informative) Data Model for Circuit Breaker	59
Annex H (informative) Data Model for Disconnectors	63
Bibliography	66
Figure 1 – Scope of standard IEC 62271-3	7
Figure 2 – Class diagram LogicalNodes_62271_3: LogicalNodes_62271_3	16
Figure 3 – Class diagram LNGroupX::LNGroupX	17
Figure 4 – Calculation of intelligent switchgear operating times (example 1)	28
Figure 5 – Calculation of intelligent switchgear operating times (example 2)	29
Figure 6 – Opening or closing signal to intelligent switchgear	30
Figure 7 – Opening or closing signal to conventional switchgear	30
Figure 8 – Opening operation of an intelligent circuit-breaker	31
Figure 9 – Closing operation of an intelligent circuit-breaker	32
Figure 10 – GIS (example 1)	33

Figure 11 – Secondary system in medium voltage cubicle (example 2)	34
Figure 12 – AIS circuit-breaker (example 3)	35
Figure 13 – AIS circuit-breaker (example 4)	36
Figure 14 – GIS (example 1) with Ethernet based communication network	37
Figure 15 – GIS (example 2) with Ethernet based communication network	38
Figure 16 – AIS circuit-breaker (example 3) with Ethernet based communication network	38
Figure 17 – AIS circuit-breaker (example 4) with Ethernet based communication network	39
Figure 18 – Performance test of an intelligent switchgear (configuration 1)	43
Figure 19 – Performance test of an intelligent switchgear (configuration 2)	45
Figure C.1 – Performance test of an intelligent switchgear operation time	52
Figure C.2 – Performance test of an intelligent switchgear – CB make and break time	53
Figure D.1 - Switchgear controllers connected to Com device via Ethernet link	54
Figure D.2 - Switchgear controllers as part of communication device	55
Figure E.1- Specific model to highlight the scope of standard IEC 62271-3	56
Figure F.1 – Combination of two instances of LN class XSWI	57
Figure F.2 – Derivation of intermediate position	57

iTeh Standards

(<https://standards.iteh.ai/catalog/standards/sist/a93b52d6-216b-4131-acb2-92161e4888da/osit-pren-iec-62271-3-2026>)

Table 1 – Attributes of IEC 62271-3:2025A namespace	9
Table 2 – Normative abbreviations for data object names	15
Table 3 – List of classes defined in LNGroupX package	18
Table 4 – Data objects of XCBRExt	19
Table 5 – Data objects of XSWIExt	21
Table 6 – LNs in switchgear communication interface	22
Table 7 – ACSI basic conformance statement	24
Table 8 – ACSI models conformance statement	26
Table 9 – ACSI service conformance statement	27
Table A.1 – Test overview table	48
Table B.1 – Common data class VSD	49
Table B.2 – Mapping of IEC 61850 data objects on IEC 62271 (1 of 2)	50
Table B.3 – Mapping of IEC 61850 data objects on IEC 62271 (2 of 2)	51
Table F.1 – Summary of all possible switching states	58
Table G.1 – LN used for circuit breaker data model	59
Table G.2 – Data model of phase segregated circuit breaker	59
Table G.3 – Data model of circuit breaker with coupled poles	61
Table H.1 – LN used for disconnecter data model	63
Table H.2 – Data model of phase segregated disconnecter	63
Table H.3 – Data model of disconnecter with coupled poles	64

INTERNATIONAL ELECTROTECHNICAL COMMISSION

HIGH-VOLTAGE SWITCHGEAR AND CONTROLGEAR –**Part 3: Digital interfaces based on IEC 61850****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.

International Standard IEC 62271-3 has been prepared by IEC technical committee 17: Switchgear and controlgear. This third edition cancels and replaces the second edition published in 2015. This edition constitutes a technical revision.

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

- a) Scope of this standard is explained in more detail (subclauses 1.1.1 and 1.1.2)
- b) Logical node classes, constructed classes structure and descriptions (subclause 5.2)
- c) Definition of the term "communication devices" in the context of this standard has been added (subclause 3.23)
- d) an update to the latest edition(s) of IEC 61850 series
- e) an update of normative references
- f) the Annex C gives an additional simplified example for performance type testing
- g) the definition of switchgear controller was improved (subclause 3.21)