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

EESTI STANDARDIKESKUS
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NATIONAL FOREWORD

See Eesti standard EVS-EN 62271-3:2015 sisaldab Euroopa standardi EN 62271-3:2015 ingliskeelset teksti.	This Estonian standard EVS-EN 62271-3:2015 consists of the English text of the European standard EN 62271-3:2015.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 01.05.2015.	Date of Availability of the European standard is 01.05.2015.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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EN 62271-3

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English Version

High-voltage switchgear and controlgear - Part 3: Digital interfaces based on IEC 61850 (IEC 62271-3:2015)

Appareillage à haute tension - Partie 3: Interfaces numériques basées sur l'IEC 61850 (IEC 62271-3:2015)

Hochspannungs-Schaltgeräte und -Schaltanlagen - Teil 3: Digitale Schnittstellen nach IEC 61850 (IEC 62271-3:2015)

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

The text of document 17C/617/FDIS, future edition 2 of IEC 62271-3, prepared by SC 17C "High-voltage switchgear and controlgear assemblies" of IEC/TC 17 "Switchgear and controlgear" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62271-3:2015.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2016-01-14
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2018-04-14

This document supersedes EN 62271-3:2006.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 62271-3:2015 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 standards indicated:

IEC 60265 Series	NOTE	Harmonized as EN 60265 Series [1)].
IEC 60794 Series	NOTE	Harmonized as EN 60794 Series.
IEC 61754-20:2012	NOTE	Harmonized as EN 61754-20:2012 (not modified).
IEC 61850-6:2009	NOTE	Harmonized as EN 61850-6:2010 (not modified).
IEC 61850-7-1:2011	NOTE	Harmonized as EN 61850-7-1:2011 (not modified).
IEC 61850-7-410:2012	NOTE	Harmonized as EN 61850-7-410:2013 (not modified).
IEC 61850-7-420:2009	NOTE	Harmonized as EN 61850-7-420:2009 (not modified).
IEC 61869-9 [2)]	NOTE	Harmonized as EN 61869-9 [2)] (not modified).
IEC 62271-102:2001	NOTE	Harmonized as EN 62271-102:2002 (not modified).
IEC 62271-102:2001/A1:2011	NOTE	Harmonized as EN 62271-102:2002/A1:2011 (not modified).
IEC 62271-102:2001/A2:2013	NOTE	Harmonized as EN 62271-102:2002/ A2:2013 (not modified).
IEC 62271-103	NOTE	Harmonized as EN 62271-103.
IEC 62271-104	NOTE	Harmonized as EN 62271-104.
IEC 62271-202	NOTE	Harmonized as EN 62271-202.
ISO/IEC 7498-1:1994	NOTE	Harmonized as EN ISO/IEC 7498-1:1994 [3)] (not modified).

[1)] Superseded by EN 62271 Series.

[2)] At draft stage.

[3)] Withdrawn publication.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When 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.cenelec.eu

Publication	Year	Title	EN/HD	Year
IEC 60870-4	1990	Telecontrol equipment and systems - Part 4: Performance requirements	HD 546.4 S1	1992
IEC 61850-3	2013	Communication networks and systems for power utility automation - Part 3: General requirements	EN 61850-3	2014
IEC 61850-4	2011	Communication networks and systems for power utility automation - Part 4: System and project management	EN 61850-4	2011
IEC 61850-5	2013	Communication networks and systems for power utility automation - Part 5: Communication requirements for functions and device models	EN 61850-5	2013
IEC 61850-7-2	2010	Communication networks and systems for power utility automation - Part 7-2: Basic information and communication structure - Abstract communication service interface (ACSI)	EN 61850-7-2	2010
IEC 61850-7-3	2010	Communication networks and systems for power utility automation - Part 7-3: Basic communication structure - Common data classes	EN 61850-7-3	2011
IEC 61850-7-4	2010	Communication networks and systems for power utility automation - Part 7-4: Basic communication structure - Compatible logical node classes and data object classes	EN 61850-7-4	2010
IEC 61850-8-1	2011	Communication networks and systems for power utility automation - Part 8-1: Specific Communication Service Mapping (SCSM) - Mappings to MMS (ISO 9506-1 and ISO 9506-2) and to ISO/IEC 8802-3	EN 61850-8-1	2011

Publication	Year	Title	EN/HD	Year
IEC 61850-9-2	2011	Communication networks and systems for power utility automation - Part 9-2: Specific Communication Service Mapping (SCSM) - Sampled values over ISO/IEC 8802-3	EN 61850-9-2	2011
IEC 61850-10	2012	Communication networks and systems for power utility automation - Part 10: Conformance testing	EN 61850-10	2013
IEC/TR 61850-90-4	2013	Communication networks and systems for power utility automation - Part 90-4: Network engineering guidelines	-	-
IEC 62271-1	2007	High-voltage switchgear and controlgear - Part 1: Common specifications	EN 62271-1	2008
A1	2011		A1	2011
IEC 62271-100	2008	High-voltage switchgear and controlgear - Part 100: Alternating current circuit-breakers	EN 62271-100	2009
A1 + corr. December 2012	2012		A1	2012

CONTENTS

INTRODUCTION

0.1 General

This standard is a product family standard for high-voltage switchgear and controlgear and assemblies thereof. It provides an application of the horizontal standard series IEC 61850 which details layered power utility communication architecture, in the world of high-voltage switchgear and controlgear.

By providing tutorial material such as examples and explanations, it also gives an access for switchgear experts to concepts and methods applied in the IEC 61850 series.

Compared to switchgear equipment, digital communication technology is subject to ongoing changes which are expected to continue in the future. Profound experience with electronics integrated directly into switchgear has yet to be gathered on a broader basis, as this type of equipment is not widely spread in the industry and a change of metabolism has not yet occurred.

This situation is taken into account in this standard by setting an appropriate validity date and by specifying several options to most of the communication-related requirements, such as connectors or fibres.

0.2 Position of this standard in relation to the IEC 61850 series

The IEC 61850 series is a horizontal standard intended to be used for communication and systems in the power utility. The most important parts of this series define:

1) information models for the power utility automation system.
   These information models include both the models of the switchgear (like circuit-breakers and disconnectors) and other process equipment (like instrument transformers), and the models of the power utility automation system (like protection relays);
2) the communication between intelligent electronic devices (IEDs) of the power utility automation system;
3) a configuration language used to describe the configuration aspects of the power utility automation system;
4) conformance testing of the communication interfaces of the IEDs of the power utility automation system including their data models.

Typically, IEDs like bay level controllers interface to switchgear. In that case, the data models of the switchgear are implemented in these devices. However, this is not the only realization. In the case where electronics are integrated direct into switchgear, the above-mentioned data models should be implemented within the switchgear and the switchgear supports a communication interface.

IEC 61850, being a horizontal standard series, leaves many options open in order to support present and future requirements of all sizes of power utility automation system at all voltage levels.