SVENSK STANDARD SS-EN 61850-3

Fastställd	Utgåva	Sida	Ansvarig kommitté
2014-11-19	2	1 (1+71)	SEK TK 57

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Kommunikationsnät och system för kraftföretagsautomation – Del 3: Allmänna fordringar

Communication networks and systems for power utility automation – Part 3: General requirements

Som svensk standard gäller europastandarden EN 61850-3:2014. Den svenska standarden innehåller den officiella engelska språkversionen av EN 61850-3:2014.

Nationellt förord

Europastandarden EN 61850-3:2014

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 61850-3, Second edition, 2013 - Communication networks and systems for power utility automation - Part 3: General requirements**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 61850-3, utgåva 1, 2003, gäller ej fr o m 2017-01-16.

ICS 33.200.00

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61850-3

July 2014

ICS 33.200

Supersedes EN 61850-3:2002

English Version

Communication networks and systems for power utility automation - Part 3: General requirements (IEC 61850-3:2013)

Réseaux et systèmes de communication pour l'automatisation des systèmes électriques - Partie 3: Exigences générales (CEI 61850-3:2013)

Kommunikationsnetze und -systeme für die Automatisierung in der elektrischen Energieversorgung - Teil 3: Allgemeine Anforderungen (IEC 61850-3:2013)

This European Standard was approved by CENELEC on 2014-01-16. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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

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Ref. No. EN 61850-3:2014 E

SEK Svensk Elstandard

Foreword

The text of document 57/1391/FDIS, future edition 2 of IEC 61850-3, prepared by IEC/TC 57 "Power systems management and associated information exchange" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61850-3:2014.

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)	2015-01-18
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2017-01-16

This document supersedes EN 61850-3:2002.

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ANM – (sv anm) Uppgifter om andra, felaktiga datum har tidigare cirkulerat i CENELEC.

Endorsement notice

The text of the International Standard IEC 61850-3:2013 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 60127-1	NOTE	Harmonized as EN 60127-1.
IEC 60255-27:2005	NOTE	Harmonized as EN 60255-27:2005 (not modified).
IEC 60297-3-101	NOTE	Harmonized as EN 60297-3-101.
IEC 60721-3-3	NOTE	Harmonized as EN 60721-3-3.

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 When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
CISPR 22	2008	Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement	EN 55022 + AC:2011[1)]	2010 2011
CISPR 24 + corr. June	2010 2011	Information technology equipment - Immunity characteristics - Limits and methods of measurement	EN 55024	2010
EN 60068-2-1	2007	Environmental testing - Part 2-1: Tests - Test A: Cold		
IEC 60068-2-2	2007	Environmental testing - Part 2-2: Tests - Test B: Dry heat	EN 60068-2-2	2007
IEC 60068-2-14	2009	Environmental testing - Part 2-14: Tests - Test N: Change of temperature	EN 60068-2-14	2009
IEC 60068-2-30	2005	Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle)	EN 60068-2-30	2005
IEC 60068-2-78	2001	Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady state	EN 60068-2-78[2)]	2001
IEC 60255-21-1		Electrical relays - Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment - Section 1: Vibration tests (sinusoidal)	EN 60255-21-1	
IEC 60255-21-2		Electrical relays - Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment - Section 2: Shock and bump tests	EN 60255-21-2	
IEC 60255-21-3		Electrical relays - Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment - Section 3: Seismic tests	EN 60255-21-3	
IEC 60255-27	2013	Measuring relays and protection equipment - Part 27: Product safety requirements	EN 60255-27	2014

[1)] EN 55022 is superseded by EN 50561-1:2013, which is based on .

[2)] EN 60068-2-78 is superseded by EN 60068-2-78:2013, which is based on IEC 60068-2-78:2012.

Publication	Year	Title	EN/HD	Year
IEC 60417	data base		HD 243 S12[3) 4)]	1995
IEC 60529		Degrees of protection provided by enclosures (IP Code)	-	-
IEC 60664-1		Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	
IEC 60695-11-10		Fire hazard testing - Part 11-10: Test flames - 50 W horizontal and vertical flame test methods	EN 60695-11-10	
IEC 60825-1		Safety of laser products - Part 1: Equipment classification and requirements	EN 60825-1	
IEC 60990	1999	Methods of measurement of touch current and protective conductor current	EN 60990	1999
IEC 61000-4-2	2008	Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	EN 61000-4-2	2009
IEC 61000-4-3	2008	Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test		
IEC 61000-4-4 + corr. June	2004 2007	Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	EN 61000-4-4[5)]	2004
IEC 61000-4-5 + corr. October	2005 2009	Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test	EN 61000-4-5	2006
IEC 61000-4-6	2008	Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields	EN 61000-4-6[6)]	2009
IEC 61000-4-8	2001	Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test		
IEC 61000-4-11	2004	Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests	EN 61000-4-11	2004
IEC 61000-4-16	2002	Electromagnetic compatibility (EMC) - Part 4-16: Testing and measurement techniques - Test for immunity to conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz		

[3)] HD 243 S12 includes supplement(s) M to K to IEC 60417.

[4)] HD 243 S12 is superseded by EN 60417-2:1999, which is based on IEC 60417-2:1998.

[5)] EN 61000-4-4 is superseded by EN 61000-4-4:2012, which is based on IEC 61000-4-4:2012.

[6)] EN 61000-4-6 is superseded by EN 61000-4-6:2014, which is based on IEC 61000-4-6:2013.

Publication	Year	Title	EN/HD	Year
IEC 61000-4-17	2009	Electromagnetic compatibility (EMC) - Part 4-17: Testing and measurement techniques - Ripple on d.c. input power port immunity test	-	-
IEC 61000-4-18	2006	Electromagnetic compatibility (EMC) - Part 4-18: Testing and measurement techniques - Damped oscillatory wave immunity test	EN 61000-4-18 + corr. September	2007 2007
IEC 61000-4-29	2000	Electromagnetic compatibility (EMC) - Part 4-29: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations on d.c. input power port immunity tests	EN 61000-4-29	2000
IEC 61010-1 + corr. May	2010 2011	Safety requirements for electrical equipment for measurement, control and laboratory use - Part 1: General requirements	EN 61010-1	2010
IEC 61180-1	1992	High-voltage test techniques for low-voltage equipment - Part 1: Definitions, test and procedure requirements	EN 61180-1	1994
IEC 61180-2		High-voltage test techniques for low-voltage equipment - Part 2: Test equipment	EN 61180-2	
IEC/TS 61850-2	2003	Communication networks and systems in substations - Part 2: Glossary		
IEC 61850	(Series)	Communication networks and systems in substations - Part 6: Configuration description language for communication in electrical substations related to IEDs	EN 61850	(Series)
IEC 62271-1		High-voltage switchgear and controlgear - Part 1: Common specifications	EN 62271-1	
IEEE 1613	2009	IEEE Standard Environmental and Testing Requirements for Communications Networking Devices Installed in Electric Power Substations		
ISO 780	1997	Packaging - Pictorial marking for handling of goods	EN ISO 780	1999
ISO 7000		Graphical symbols for use on equipment - Registered symbols		
ISO 9772		Cellular plastics - Determination of horizontal burning characteristics of small specimens subjected to a small flame		

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMUNICATION NETWORKS AND SYSTEMS FOR POWER UTILITY AUTOMATION –

Part 3: General requirements

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.
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International Standard IEC 61850-3 has been prepared by IEC technical committee 57: Power systems management and associated information exchange system.

This second edition cancels and replaces the first edition published in 2002. This edition constitutes a technical revision.

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

a) requirements are in line with those of other equipment used in the same environment (e.g. protection relays);
b) product safety added based on IEC 60255-27;
c) EMC requirements completed and in line with IEC 60255 series and IEC 61000-6-5.

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

FDIS	Report on voting
57/1391/FDIS	57/1416/RVD

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

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

In this standard, the following print types are used:

– compliance statements: in italic type;

– markings: in bold type and caps.

A list of all parts in the IEC 61850 series, published under the general title *Communication networks and systems for power utility automation*, can be found on the IEC website.

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

COMMUNICATION NETWORKS AND SYSTEMS FOR POWER UTILITY AUTOMATION –

Part 3: General requirements

1 Scope

This part of IEC 61850 defines the general requirements, mainly regarding construction, design and environmental conditions for utility communication and automation IEDs and systems in power plant and substation environments. These general requirements are in line with requirements for IEDs used in similar environments, for example measuring relays and protection equipment.

When communication or automation IEDs are an integral part of another device in the power plant or substation, then the environmental requirements for the device itself apply to the communications equipment.

2 Normative references

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.

IEC 60068-2-1:2007, *Environmental testing – Part 2-1: Tests – Test A: Cold*

IEC 60068-2-2:2007, *Environmental testing – Part 2-2: Tests – Test B: Dry heat*

IEC 60068-2-14:2009, *Environmental testing – Part 2-14: Tests – Test N: Change of temperature*

IEC 60068-2-30:2005, *Environmental testing – Part 2-30: Tests – Test Db: Damp heat, cyclic (12 h + 12 h cycle)*

IEC 60068-2-78:2001, *Environmental testing – Part 2-78: Tests – Test Cab: Damp heat,steady state*

IEC 60255-21-1, *Electrical relays – Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment – Section 1: Vibration tests (sinusoidal)*

IEC 60255-21-2, *Electrical relays – Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment – Section 2: Shock and bump tests*

IEC 60255-21-3, *Electrical relays – Part 21: Vibration, shock, bump and seismic tests on measuring relays and protection equipment – Section 3: Seismic tests*

IEC 60255-27:2013, *Measuring relays and protection equipment – Part 27: Product safety requirements*

IEC 60417, *Graphical symbols for use on equipment.* Available from <http://www.graphical-symbols.info/equipment>

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 60664-1, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

IEC 60695-11-10, *Fire hazard testing – Part 11-10: Test flames – 50 W horizontal and vertical flame test methods*

IEC 60825-1, *Safety of laser products – Part 1: Equipment classification and requirements*

IEC 60990:1999, *Methods of measurement of touch current and protective conductor current*

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IEC 61000-4-3:2008, *Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test*

IEC 61000-4-4:2004, *Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test*

IEC 61000-4-5:2005, *Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test*

IEC 61000-4-6:2008, *Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields*

IEC 61000-4-8:2001, *Electromagnetic compatibility (EMC) – Part 4-8: Testing and measurement techniques – Power frequency magnetic field immunity test*

IEC 61000-4-11:2004, *Electromagnetic compatibility (EMC) – Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests*

IEC 61000-4-16:2002, *Electromagnetic compatibility (EMC) – Part 4-16: Testing and measurement techniques – Test for immunity to conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz*

IEC 61000-4-17:2009, *Electromagnetic compatibility (EMC) – Part 4-17: Testing and measurement techniques – Ripple on d.c. input power port immunity test*

IEC 61000-4-18:2006, *Electromagnetic compatibility (EMC) – Part 4-18: Testing and measurement techniques – Damped oscillatory wave immunity test*

IEC 61000-4-29:2000, *Electromagnetic compatibility (EMC) – Part 4-29: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations on d.c. input power port immunity tests*

IEC 61010-1:2010, *Safety requirements for electrical equipment for measurement, control and laboratory use – Part 1: General requirements*

IEC 61180-1:1992, *High-voltage test techniques for low voltage equipment – Part 1: Definitions, test and procedure requirements*

IEC 61180-2, *High-voltage test techniques for low-voltage equipment – Part 2: Test equipment*

IEC 61850 (all parts), *Communication networks and systems in substations*

IEC/TS 61850-2:2003, *Communication networks and systems in substations – Part 2: Glossary*

IEC 62271-1, *High-voltage switchgear and controlgear – Part 1: Common specifications*

CISPR 22:2008, *Information technology equipment – Radio disturbance characteristics – Limits and methods of measurement*

CISPR 24:2010, *Information technology equipment – Immunity characteristics – Limits and methods of measurement*

ISO 780:1997, *Packaging – Pictorial marking for handling of goods*

ISO 7000, *Graphical symbols for use on equipment – Registered symbols*. Available from <http://www.graphical-symbols.info/equipment>

ISO 9772, *Cellular plastics – Determination of horizontal burning characteristics of small specimens subjected to a small flame*

IEEE 1613:2009, *IEEE standard environmental and testing requirements for communications networking devices installed in electric power substations*