

<b>STN</b>	<b>Komunikačné siete a systémy automatizácie elektrických staníc. Časť 3: Všeobecné požiadavky.</b>	<b>STN EN 61850-3</b>  33 4850
------------	---	--

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 01/15

Obsahuje: EN 61850-3:2014, IEC 61850-3:2013

Oznámením tejto normy sa od 16.01.2017 ruší  
STN EN 61850-3 (33 4850) z apríla 2003

**119897**

---

Úrad pre normalizáciu, metrológiu a skúšobníctvo SR, odbor SÚTN, 2015  
Podľa zákona č. 264/1999 Z. z. v znení neskorších predpisov sa môžu slovenské technické normy  
rozmnžovať a rozširovať iba so súhlasom Úradu pre normalizáciu, metrológiu a skúšobníctvo SR.

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.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



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

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

## 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) 2014-10-18
- 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.

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 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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
CISPR 22	2008	Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement	EN 55022 + AC:2011 <sup>1)</sup>	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 <sup>2)</sup>	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

<sup>1)</sup> EN 55022 is superseded by EN 50561-1:2013, which is based on .

<sup>2)</sup> EN 60068-2-78 is superseded by EN 60068-2-78:2013, which is based on IEC 60068-2-78:2012.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60417	data base		HD 243 S12 <sup>3) 4)</sup>	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 <sup>5)</sup>	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 <sup>6)</sup>	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		

<sup>3)</sup> HD 243 S12 includes supplement(s) M to K to IEC 60417.

<sup>4)</sup> HD 243 S12 is superseded by EN 60417-2:1999, which is based on IEC 60417-2:1998.

<sup>5)</sup> EN 61000-4-4 is superseded by EN 61000-4-4:2012, which is based on IEC 61000-4-4:2012.

<sup>6)</sup> EN 61000-4-6 is superseded by EN 61000-4-6:2014, which is based on IEC 61000-4-6:2013.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
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		



# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

---

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

**Réseaux et systèmes de communication pour l'automatisation  
des systèmes électriques –  
Partie 3: Exigences générales**





## THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2013 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester.

If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de la CEI ou du Comité national de la CEI du pays du demandeur.

Si vous avez des questions sur le copyright de la CEI ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de la CEI de votre pays de résidence.

IEC Central Office  
3, rue de Varembe  
CH-1211 Geneva 20  
Switzerland

Tel.: +41 22 919 02 11  
Fax: +41 22 919 03 00  
[info@iec.ch](mailto:info@iec.ch)  
[www.iec.ch](http://www.iec.ch)

### About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

### About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

#### Useful links:

IEC publications search - [www.iec.ch/searchpub](http://www.iec.ch/searchpub)

The advanced search enables you to find IEC publications by a variety of criteria (reference number, text, technical committee,...).

It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - [webstore.iec.ch/justpublished](http://webstore.iec.ch/justpublished)

Stay up to date on all new IEC publications. Just Published details all new publications released. Available on-line and also once a month by email.

Electropedia - [www.electropedia.org](http://www.electropedia.org)

The world's leading online dictionary of electronic and electrical terms containing more than 30 000 terms and definitions in English and French, with equivalent terms in additional languages. Also known as the International Electrotechnical Vocabulary (IEV) on-line.

Customer Service Centre - [webstore.iec.ch/csc](http://webstore.iec.ch/csc)

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: [csc@iec.ch](mailto:csc@iec.ch).

### A propos de la CEI

La Commission Electrotechnique Internationale (CEI) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

### A propos des publications CEI

Le contenu technique des publications de la CEI est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

#### Liens utiles:

Recherche de publications CEI - [www.iec.ch/searchpub](http://www.iec.ch/searchpub)

La recherche avancée vous permet de trouver des publications CEI en utilisant différents critères (numéro de référence, texte, comité d'études,...).

Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

Just Published CEI - [webstore.iec.ch/justpublished](http://webstore.iec.ch/justpublished)

Restez informé sur les nouvelles publications de la CEI. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

Electropedia - [www.electropedia.org](http://www.electropedia.org)

Le premier dictionnaire en ligne au monde de termes électroniques et électriques. Il contient plus de 30 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans les langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (VEI) en ligne.

Service Clients - [webstore.iec.ch/csc](http://webstore.iec.ch/csc)

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: [csc@iec.ch](mailto:csc@iec.ch).





IEC 61850-3

Edition 2.0 2013-12

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

---

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

**Réseaux et systèmes de communication pour l'automatisation  
des systèmes électriques –  
Partie 3: Exigences générales**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

PRICE CODE **XB**  
CODE PRIX

---

ICS 33.200

ISBN 978-2-8322-1216-5

**Warning! Make sure that you obtained this publication from an authorized distributor.  
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

## CONTENTS

FOREWORD.....	5
1 Scope.....	7
2 Normative references .....	7
3 Terms, definitions and abbreviations .....	9
3.1 Terms and definitions.....	9
3.2 Abbreviations.....	20
4 Environmental conditions.....	20
4.1 General.....	20
4.2 Normal environmental conditions .....	20
4.3 Special environmental conditions .....	21
4.4 Storage conditions .....	22
5 Ratings.....	22
5.1 General.....	22
5.2 Rated voltage – Auxiliary energizing voltage .....	22
5.2.1 AC voltage.....	22
5.2.2 DC voltage.....	22
5.2.3 Operating range.....	22
5.3 Binary input and output .....	22
5.3.1 Binary input .....	22
5.3.2 Binary output .....	22
5.4 Rated burden .....	22
5.5 Rated ambient temperature.....	22
6 Design and construction .....	23
6.1 Marking.....	23
6.1.1 General .....	23
6.1.2 Identification .....	23
6.1.3 Auxiliary supplies, I/O .....	23
6.1.4 Fuses .....	24
6.1.5 Terminals and operating devices .....	25
6.1.6 Equipment protected by double or reinforced insulation .....	25
6.1.7 Batteries .....	26
6.1.8 Test voltage marking .....	27
6.1.9 Warning markings.....	28
6.1.10 Marking durability .....	29
6.2 Documentation.....	29
6.2.1 General .....	29
6.2.2 Equipment ratings.....	29
6.2.3 Equipment installation .....	30
6.2.4 Equipment commissioning and maintenance.....	31
6.2.5 Equipment operation.....	31
6.3 Packaging.....	31
6.3.1 General .....	31
6.3.2 Marking of packaging.....	32
6.4 Dimensions.....	32
6.5 Functional performance requirements .....	32
6.6 Product safety requirements .....	32

6.6.1	Clearances and creepage distances .....	32
6.6.2	IP rating.....	34
6.6.3	Impulse voltage .....	34
6.6.4	AC or d.c. dielectric voltage test .....	36
6.6.5	Protective bonding resistance.....	39
6.6.6	Flammability of insulation materials, components and fire enclosure.....	39
6.6.7	Single-fault condition .....	41
6.7	Electromagnetic compatibility (EMC).....	44
6.7.1	General .....	44
6.7.2	Electromagnetic environment.....	45
6.7.3	Immunity requirements and type tests.....	45
6.7.4	Emission requirements and type tests.....	54
6.8	Burden test .....	55
6.8.1	Burden for AC power supply .....	55
6.8.2	Burden for DC power supply .....	55
6.8.3	Burden for binary input .....	55
6.9	Climatic performance .....	55
6.9.1	General .....	55
6.9.2	Verification procedure.....	56
6.9.3	Climatic environmental tests .....	57
6.10	Mechanical performance .....	61
6.10.1	Vibration response and endurance (sinusoidal).....	61
6.10.2	Shock response, shock withstand and bump .....	61
6.10.3	Seismic.....	61
6.11	Enclosure protection .....	62
7	Tests .....	62
7.1	General.....	62
7.2	Test reference conditions .....	62
7.3	Device reliability classes .....	62
7.4	Communication conditions during tests .....	62
7.5	Conditions to be met (acceptance criteria) .....	63
7.5.1	General .....	63
7.5.2	Conditions to be met by class 1 and class 2 devices .....	63
7.5.3	Additional condition to be met by class 1 devices .....	63
7.5.4	Additional condition to be met by class 2 devices .....	63
7.5.5	Equipment functioning .....	64
7.5.6	Exceptions.....	64
7.6	Test overview.....	64
7.7	Test report content.....	65
8	Marking, labelling and packaging.....	66
9	Rules for transport, storage, installation, operation and maintenance .....	66
10	Product documentation .....	66
	Bibliography.....	67

Figure 1 – Example of power station and substation: selection of the specifications for apparatus and related connections .....

47

Figure 2 – Example air-insulated substation (AIS): selection of the specifications for apparatus and related connections .....

49

Table 1 – Normal environmental conditions.....	21
Table 2 – Special environmental conditions .....	21
Table 3 – Symbols .....	26
Table 4 – Symbols and marking of test voltage(s) .....	28
Table 5 – Current levels in normal operational condition .....	34
Table 6 – Charge of energy of capacitance levels .....	34
Table 7 – AC test voltages .....	38
Table 8 – Current levels in single fault condition .....	44
Table 9 – Immunity specification – Enclosure port.....	49
Table 10 – Immunity specifications – Signal ports .....	50
Table 11 – Immunity specifications – Low voltage a.c. input power ports and low voltage a.c. output power ports .....	51
Table 12 – Immunity specifications – Low voltage d.c. input power ports and low voltage d.c. output power ports .....	52
Table 13 – Immunity specifications – Functional earth port .....	53
Table 14 – Emission tests – Auxiliary power supply port .....	54
Table 15 – Emission tests – Telecommunication port.....	54
Table 16 – Emission tests below 1 GHz – Enclosure port at a measuring distance of 10 m .....	54
Table 17 – Emission tests above 1 GHz – Enclosure port at a measuring distance of 3 m .....	54
Table 18 – Dry heat test operational .....	57
Table 19 – Cold test operational .....	58
Table 20 – Dry heat test maximum storage temperature .....	58
Table 21 – Cold test minimum storage temperature .....	59
Table 22 – Change of temperature test .....	59
Table 23 – Damp heat steady state test .....	60
Table 24 – Damp heat cyclic test .....	61
Table 25 – Test reference conditions .....	62
Table 26 – Device communications profiles (conditions) during tests for Ethernet equipment with specified ranges of frame size (for example, an Ethernet switch).....	63
Table 27 – Device communications profiles (conditions) during tests for serial devices without specified ranges of frame size (for example, serial media converters).....	63
Table 28 – Test overview .....	64

## 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.
- 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 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.

~~IEC 61850-3 (this part) is based on the following documents~~

IEC/TS 61850-2:2003, <i>Glossary</i>	<sup>FDIS</sup> <i>Communication networks and systems in substations – Part 2:</i>	<sup>Report on voting</sup> <i>in substations – Part 2:</i>
	57/1391/FDIS	57/1416/RVD

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

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

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

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

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

In this standard, the following print types are used:

- compliance statements: in italic type;
- ISO 780:1997, *Packaging – Pictorial marking for handling of goods*
- markings: in bold type and caps.

ISO 7000, *Graphical symbols for use in equipment – Registered symbols. Available from [http://www.iso.org/iso/home/standards/graphical\\_symbols/information.htm](http://www.iso.org/iso/home/standards/graphical_symbols/information.htm)*

ISO 9722, *Cellular phones – Determination of horizontal burning characteristics of small specimens subjected to a small flame*

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

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

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

## COMMUNICATION NETWORKS AND SYSTEMS FOR POWER UTILITY AUTOMATION –

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

### Part 3: General requirements

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*

#### 1 Scope

CISPR 24:2010, *Information technology equipment – Immunity characteristics – Limits and methods of measurement*  
 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 power networks, for example measuring relays and protection equipment.

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

ISO 9702, *Cellulose papers – Determination of horizontal burning characteristics of small specimens subjected to a small flame*

#### 2 Normative references

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

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 60820, ~~(Delegated) Protection provisions for networks and systems (IEC 60820)~~

IEC 60634-1:2011, ~~Coordination of protection equipment and systems - voltage substations — Part 2: Principles, requirements and tests~~

IEC 60295-1, ~~High voltage and lightning arrester control gear — Part 1: Test Plans 50 to 100 kV specifications~~ vertical flame test methods

CISPR 22:2008, ~~Information technology equipment – Radio disturbance characteristics – Limits and the safety of these products – Part 1: Equipment classification and requirements~~

CISPR 92A:2009, ~~Methods of measurement of equipment current and voltage characteristics and methods of measurement~~

IEC 61000-4-2:2008, ~~Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge and lightning tests~~

ISO 7000-6:2008, ~~Electromagnetic compatibility – (EMC) Part 6: A Testable and measurable techniques – Radiated radio frequency, electromagnetic field immunity test~~

ISO 9702-4:2004, ~~Electromagnetic compatibility (EMC) Part 4: Testing and measurement techniques – Fast transient/burst immunity test~~

IEC 61000-4-5:2009, ~~Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Sustained multi-cycle power substations~~

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*

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**