



# SLOVENSKI STANDARD

## SIST EN 61850-10:2013

01-september-2013

Nadomešča:

SIST EN 61850-10:2005

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**Komunikacijska omrežja in sistemi za avtomatizacijo porabe električne energije -  
10. del: Preskušanje skladnosti (IEC 61850-10:2012)**

Communication networks and systems for power utility automation - Part 10:  
Conformance testing

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Partie 10: Essais de conformité

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**Ta slovenski standard je istoveten z: EN 61850-10:2013**

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**ICS:**

29.240.30	Krmilna oprema za elektroenergetske sisteme	Control equipment for electric power systems
33.200	Daljinsko krmiljenje, daljinske meritve (telemetrija)	Telecontrol. Telemetry

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 61850-10**

July 2013

ICS 33.200

Supersedes EN 61850-10:2005

English version

**Communication networks and systems for power utility automation -  
Part 10: Conformance testing  
(IEC 61850-10:2012)**

Réseaux et systèmes de communication  
pour l'automatisation des systèmes  
électriques -  
Partie 10: Essais de conformité  
(CEI 61850-10:2012)

Kommunikationsnetze und -systeme in  
Stationen -  
Teil 10: Konformitätsprüfung  
(IEC 61850-10:2012)

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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.

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Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

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

## Foreword

The text of document 57/1284/FDIS, future edition 2 of IEC 61850-10, 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 61850-10:2013.

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) 2014-01-05
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2016-01-18

This document supersedes EN 61850-10:2005.

EN 61850-10:2013 includes the following significant technical changes with respect to EN 61850-10:2005:

- server device conformance test procedures have been updated;
- client device conformance test procedures have been added;
- sampled values device conformance test procedures have been added;
- (engineering) tool related conformance test procedures have been added;
- GOOSE performance test procedures have been added.

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 61850-10:2013 was approved by CENELEC as a European Standard without any modification.

## 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>
IEC/TS 61850-2	-	Communication networks and systems in substations - Part 2: Glossary	-	-
IEC 61850-3	-	Communication networks and systems for power utility automation - Part 3: General requirements	EN 61850-3	-
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	2003	Communication networks and systems in substations - Part 5: Communication requirements for functions and device models	EN 61850-5 <sup>1)</sup>	2003
IEC 61850-6	2009	Communication networks and systems for power utility automation - Part 6: Configuration description language for communication in electrical substations related to IEDs	EN 61850-6	2010
IEC 61850-7-1	2011	Communication networks and systems for power utility automation - Part 7-1: Basic communication structure - Principles and models	EN 61850-7-1	2011
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

<sup>1)</sup> EN 61850-5 is superseded by EN 61850-5:2013, which is based on IEC 61850-5:2013.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
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
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 62439-3	2012	Industrial communication networks - High availability automation networks - Part 3: Parallel Redundancy Protocol (PRP) and High availability Seamless Redundancy (HSR)	EN 62439-3	2012
ISO 9001	-	Quality management systems - Requirements	EN ISO 9001	-
ISO 9506	Series	Industrial automation systems - Manufacturing Message Specification	-	-
ISO/IEC 9646	Series	Information technology - Open Systems Interconnection - Conformance testing methodology and framework	EN ISO/IEC 9646	-
IEEE 1588	2008	IEEE Standard for a Precision Clock Synchronization Protocol for Networked Measurement and Control Systems	-	-

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IEC 61850-10

Edition 2.0 2012-12

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



Communication networks and systems for power utility automation –  
Part 10: Conformance testing

Réseaux et systèmes de communication pour l'automatisation des systèmes  
électriques –  
Partie 10: Essais de conformité

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

PRICE CODE  
CODE PRIX

**XC**

ICS 33.200

ISBN 978-2-83220-557-0

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**COMMUNICATION NETWORKS AND SYSTEMS  
FOR POWER UTILITY AUTOMATION –**
**Part 10: Conformance testing****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 61850-10 has been prepared by IEC technical committee 57: Power systems management and associated information exchange.

This second edition cancels and replaces the first edition published in 2005. It constitutes a technical revision.

The major technical changes with regard to the previous edition are as follows:

- server device conformance test procedures have been updated;
- client device conformance test procedures have been added;
- sampled values device conformance test procedures have been added;
- (engineering) tool related conformance test procedures have been added;
- GOOSE performance test procedures have been added.

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

FDIS	Report on voting
57/1284/FDIS	57/1303/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.

A list of all parts of IEC 61850 series, 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.

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## INTRODUCTION

This part of IEC 61850 is part of a set of specifications which details a layered power utility communication architecture.

This part of IEC 61850 defines:

- the methods and abstract test cases for conformance testing of client, server and sampled values devices used in power utility automation systems, and
- the methods and abstract test cases for conformance testing of engineering tools used in power utility automation systems, and
- the metrics to be measured within devices according to the requirements defined in IEC 61850-5.

The intended readers are IEC 61850 developers, test engineers and test system developers.

NOTE 1 Tests regarding EMC requirements and environmental conditions are subject to IEC 61850-3 and not included in this part of IEC 61850.

It is recommended that IEC 61850-5 and IEC 61850-7-1 be read first in conjunction with IEC 61850-7-2, IEC 61850-7-3, and IEC 61850-7-4.

NOTE 2 Abbreviations used in IEC 61850-10 are listed in Clause 4 or may be found in other parts of IEC 61850 that are relevant for conformance testing.

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## COMMUNICATION NETWORKS AND SYSTEMS FOR POWER UTILITY AUTOMATION –

### Part 10: Conformance testing

#### 1 Scope

This part of IEC 61850 specifies standard techniques for testing of conformance of client, server and sampled value devices and engineering tools, as well as specific measurement techniques to be applied when declaring performance parameters. The use of these techniques will enhance the ability of the system integrator to integrate IEDs easily, operate IEDs correctly, and support the applications as intended.

NOTE The role of the test facilities for conformance testing and certifying the results is beyond the scope of this part of IEC 61850.

#### 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 61850-2, *Communication networks and systems for power utility automation – Part 2: Glossary*

[SIST EN 61850-10:2013](https://standards.iteh.ai/catalog/standards/sist/20bc59f9-b5d7-401f-b847-816c02834098/iec-61850-10-2013)

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IEC 61850-3, *Communication networks and systems for power utility automation – Part 3: General requirements*

IEC 61850-4:2011, *Communication networks and systems for power utility automation – Part 4: System and project management*

IEC 61850-5:2003, *Communication networks and systems for power utility automation – Part 5: Communication requirements for functions and devices models*

IEC 61850-6:2009, *Communication networks and systems for power utility automation – Part 6: Configuration description language for communication in electrical substations related to IEDs*

IEC 61850-7-1:2011, *Communication networks and systems for power utility automation – Part 7-1: Basic communication structure – Principles and models*

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)*

IEC 61850-7-3:2010, *Communication networks and systems for power utility automation – Part 7-3: Basic communication structure – Common data classes*

IEC 61850-7-4:2011, *Communication networks and systems for power utility automation – Part 7-4: Basic communication structure – Compatible logical node classes and data object classes*