SLOVENSKI STANDARD

SIST EN 61850-6:2005

november 2005

Komunikacijska omrežja in sistemi v postajah – 6. del: Jezik za opisovanje konfiguracije za komunikacijo v postajah z inteligentnimi elektronskimi napravami (IED) (IEC 61850-6:2004)

Communication networks and systems in substations - Part 6: Configuration description language for communication in electrical substations related to IEDs (IEC 61850-6:2004)

iTeh STANDARD PREVIEW (standards.iteh.ai)

<u>SIST EN 61850-6:2005</u> https://standards.iteh.ai/catalog/standards/sist/c10b23f0-9d81-4ab9-9dad-87baa730db95/sist-en-61850-6-2005

ICS 33.040.40

Referenčna številka SIST EN 61850-6:2005(en)

iTeh STANDARD PREVIEW (standards.iteh.ai)

<u>SIST EN 61850-6:2005</u> https://standards.iteh.ai/catalog/standards/sist/c10b23f0-9d81-4ab9-9dad-87baa730db95/sist-en-61850-6-2005

FUROPEAN STANDARD

EN 61850-6

NORME EUROPÉENNE

FUROPÄISCHE NORM

May 2004

ICS 33,200

English version

Communication networks and systems in substations Part 6: Configuration description language for communication in electrical substations related to IEDs

(IEC 61850-6:2004)

Réseaux et systèmes de communication dans les postes Partie 6: Langage pour la description de configuration pour la communication dans les postes électriques, entre les dispositifs électroniques intelligents (IED) iTeh STANDARD P(IEC 61850-6:2004)

Kommunikationsnetze und -systeme in Stationen Teil 6: Sprache für die Beschreibung der Konfiguration für die Kommunikation in Stationen mit intelligenten elektronischen Geräten (IED)

(CEI 61850-6:2004) (standards.iteh.ai)

SIST EN 61850-6:2005

This European Standard was approved by CENELEC on 2004-05-04 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 57/693/FDIS, future edition 1 of IEC 61850-6, prepared by IEC TC 57, Power systems management and associated information exchange, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61850-6 on 2004-05-01.

The following dates were fixed:

 latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement

(dop) 2005-02-01

 latest date by which the national standards conflicting with the EN have to be withdrawn

(dow) 2007-05-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61850-6:2004 was approved by CENELEC as a European Standard without any modification.

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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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

NOTE Where 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>	EN/HD	<u>Year</u>
IEC 61346-1	1996	Industrial systems, installations and equipment and industrial products - Structuring principles and reference designations Part 1: Basic rules	EN 61346-1	1996
IEC 61346-2	2000	Part 2: Classification of objects and codes for classes	EN 61346-2	2000
IEC/TS 61850-2	- 1 Te	Communication networks and systems in p substations Part 2: Glossary ards.iteh.ai	W	-
IEC 61850-5	- ¹⁾	Part 5: Communication requirements for functions and device models 05	EN 61850-5	2003 2)
IEC 61850-7-1	https://stan	dards.iteh.ai/catalog/standards/sist/c10b23f0-9d81-4al Part 7-1: Basic communication structure for substation and feeder equipment - Principles and models	^{59-9dad-} EN 61850-7-1	2003 ²⁾
IEC 61850-7-2	_ 1)	Part 7-2: Basic communication structure for substation and feeder equipment - Abstract communication service interface (ACSI)	EN 61850-7-2	2003 ²⁾
IEC 61850-7-3	_ 1)	Part 7-3: Basic communication structure for substation and feeder equipment - Common data classes	EN 61850-7-3	2003 ²⁾
IEC 61850-7-4	- ¹⁾	Part 7-4: Basic communication structure for substation and feeder equipment - Compatible logical node classes and data classes	EN 61850-7-4	2003 ²⁾
IEC 61850-8-1	- 1)	Part 8-1: Specific Communication Service Mapping (SCSM) - Mapping to MMS (ISO 9506-1 and ISO 9506-2) and to ISO/IEC 8802-3	EN 61850-8-1	2004 ²⁾

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	EN/HD	<u>Year</u>
IEC 61850-9-1	_ 1)	Part 9-1: Specific Communication Service Mapping (SCSM) - Sampled values over serial unidirectional multidrop point to point link	EN 61850-9-1	2003 ²⁾
IEC 61850-9-2	_ 1)	Part 9-2: Specific Communication Service Mapping (SCSM) - Sampled values over ISO/IEC 8802-3	EN 61850-9-2	2004 ²⁾
ISO/IEC 8859-1	_ 1)	Information technology - 8-bit single-byte coded graphic character sets Part 1: Latin alphabet No.1	•	-
XML 1.0	_ 1)	Extensible Markup Language (XML) 1.0, W3C	-	-
XML W3C	- 1)	Namespaces in XML, W3C	-	-
XML-0	_ 1)	XML Schema - Part 0: Primer, W3C	-	-
XML-1	- 1)	Part 1: Structures, W3C	-	-
XML-2	- ¹⁾	Part 2: Datatypes, W3C	-	-
RFC 1952	_i ₃ Te	GZIP file format specification version 4.3	Y	-
RFC 2045	- 1)	Multipurpose Internet Mail Extensions (MIME) - Part 1: Format of Internet Message Bodies 61850-62005	-	-

Message Bodies N 61850-6:2005 https://standards.iteh.ai/catalog/standards/sist/c10b23f0-9d81-4ab9-9dad-87baa730db95/sist-en-61850-6-2005

INTERNATIONAL STANDARD

IEC 61850-6

First edition 2004-03

Communication networks and systems in substations –

Part 6:

Configuration description language
for communication in electrical
substations related to IEDs
(standards.iteh.ai)

SIST EN 61850-6:2005

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Commission Electrotechnique Internationale International Electrotechnical Commission Международная Электротехническая Комиссия PRICE CODE

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMUNICATION NETWORKS AND SYSTEMS IN SUBSTATIONS -

Part 6: Configuration description language for communication in electrical substations related to IEDs

FOREWORD

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International Standard IEC 61850-6 has been prepared by IEC technical committee 57: Power systems management and associated information exchange.

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

FDIS	Report on voting
57/693/FDIS	57/713/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.

IEC 61850 consists of the following parts, under the general title Communication networks and systems in substations:

Part 1: Introduction and overview

Part 2: Glossarv

Part 3: General requirements

Part 4: System and project management

Part 5: Communication requirements for functions and device models

Part 6: Configuration description language for communication in electrical substations related to IEDs

Part 7-1: Basic communication structure for substation and feeder equipment – Principles and models

Part 7-2: Basic communication structure for substation and feeder equipment – Abstract communication service interface (ACSI)

Part 7-3: Basic communication structure for substation and feeder equipment – Common data classes

Part 7-4: Basic communication structure for substation and feeder equipment – Compatible logical node classes and data classes

Part 8-1: Specific Communication Service Mapping (SCSM) – Mappings to MMS (ISO 9506-1 and ISO 9506-2) and to ISO/IEC 8802-3

Part 9-1: Specific Communication Service Mapping (SCSM) - Sampled values over serial unidirectional multidrop point to point link

Part 9-2: Specific Communication Service Mapping (SCSM) - Sampled values over ISO/IEC 8802-3

Part 10: Conformance testing¹ SIST EN 61850-6:2005

The committee has decided that the contents of this publication will remain unchanged until 2006. At this date, the publication will be 150.500.

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

A bilingual version of this standard may be issued at a later date.

¹ Under consideration.

INTRODUCTION

This part of IEC 61850 specifies a description language for the configuration of electrical substation IEDs. This language is called Substation Configuration description Language (SCL). It is used to describe IED configurations and communication systems according to IEC 61850-5 and IEC 61850-7-x. It allows the formal description of the relations between the substation automation system and the substation (switchyard). At the application level, the switchyard topology itself and the relation of the switchyard structure to the SAS functions (logical nodes) configured on the IEDs can be described.

SCL allows the description of an IED configuration to be passed to a communication and application system engineering tool, and to pass back the whole system configuration description to the IED configuration tool in a compatible way. Its main purpose is to allow the interoperable exchange of communication system configuration data between an IED configuration tool and a system configuration tool from different manufacturers.

IEC 61850-8-x and IEC 61850-9-x, which concern the mapping of IEC 61850-7-x to specific communication stacks, may extend these definitions according to their need with additional parts, or just by restrictions on the way the values of objects have to be used.

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COMMUNICATION NETWORKS AND SYSTEMS IN SUBSTATIONS -

Part 6: Configuration description language for communication in electrical substations related to IEDs

1 Scope

This part of the IEC 61850 series specifies a file format for describing communication related IED (Intelligent Electronic Device) configurations and IED parameters, communication system configurations, switchyard (function) structures, and the relations between them. The main purpose of this format is to exchange IED capability descriptions, and SA system descriptions between IED engineering tools and the system engineering tool(s) of different manufacturers in a compatible way.

The defined language is called Substation Configuration description Language (SCL). The IED and communication system model in SCL is according to IEC 61850-5 and IEC 61850-7-x. SCSM specific extensions or usage rules may be required in the appropriate parts.

The configuration language is based on the Extensible Markup Language (XML) version 1.0.

This standard does not specify individual implementations or products using the language, nor does it constrain the implementation of entities and interfaces within a computer system. This part of the standard does not specify the download format of configuration data to an IED, although it could be used for part of the configuration data.

SIST EN 61850-6:2005

2 Normative references ds.iteh.ai/catalog/standards/sist/c10b23f0-9d81-4ab9-9dad-87baa730db95/sist-en-61850-6-2005

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

IEC 61346-1:1996, Industrial systems, installations and equipment and industrial products – Structuring principles and reference designations – Part 1: Basic rules

IEC 61346-2:2000, Industrial systems, installations and equipment and industrial products – Structuring principles and reference designations – Part 2: Classification of objects and codes for classes

IEC 61850-2, Communication networks and systems in substations – Part 2: Glossary

IEC 61850-5, Communication networks and systems in substations – Part 5: Communication requirements for functions and device models

IEC 61850-7-1, Communication networks and systems in substations – Part 7-1: Basic communication structure for substation and feeder equipment – Principles and models

IEC 61850-7-2, Communication networks and systems in substations – Part 7-2: Basic communication structure for substation and feeder equipment – Abstract communication service interface (ACSI)

IEC 61850-7-3, Communication networks and systems in substations – Part 7-3: Basic communication structure for substation and feeder equipment – Common data classes

IEC 61850-7-4, Communication networks and systems in substations – Part 7-4: Basic communication structure for substation and feeder equipment – Compatible logical node classes and data classes

IEC 61850-8-1, Communication networks and systems in substations — Part 8-1: Specific Communication Service Mapping (SCSM) — Mappings to MMS (ISO 9506-1 and ISO 9506-2) and to ISO/IEC 8802-3

IEC 61850-9-1, Communication networks and systems in substations — Part 9-1: Specific Communication Service Mapping (SCSM) — Sampled values over serial unidirectional multidrop point to point link

IEC 61850-9-2, Communication networks and systems in substations — Part 9-2: Specific Communication Service Mapping (SCSM) — Sampled values over ISO/IEC 8802-3

ISO/IEC 8859-1, Information technology – 8-bit single-byte coded graphic character sets – Part 1: Latin alphabet No. 1

Extensible Markup Language (XML) 1.0, W3C, available at http://www.w3.org/TR/2000/REC-xml-20001006

Namespaces in XML, W3C, available at http://www.w3.org/TR/1999/REC-xml-names-19990114>

XML Schema Part 0: Primer, W3C, available at http://www.w3.org/TR/2001/REC-xmlschema-0-20010502

XML Schema Part 1: Structures, W3C, available at http://www.w3.org/TR/2001/REC-xmlschema-1-20010502 (standards.iteh.ai)

XML Schema Part 2: Datatypes, W3C, available at http://www.w3.org/TR/2001/REC-xmlschema-2-20010502/

RFC 1952, GZIP //standards itch ai/catalog/standards/sist/c10b23i0 of d8 4.3 b9-9 RFC, available at http://www.ietf.org/rfc1952.txt/saa730db95/sist-en-61850-6-2005

RFC 2045, Multipurpose Internet Mail Extensions (MIME) Part One: Format of Internet Message Bodies, RFC, available at http://www.ietf.org/rfc/rfc2045.txt

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61850-2 apply.

4 Abbreviations

In general, the glossary and abbreviations defined in IEC 61850-2 apply. The following abbreviations are either special for this part of the standard, or particularly useful for understanding this part and are repeated here for convenience.

BDA	Basic Data Attribute, that is not structured
CIM	Common Information Model for energy management applications
DAI	Instantiated Data Attribute
DO	DATA in IEC 61850-7-2, data object type or instance, depending on the context
DOI	Instantiated Data Object (DATA)
DTD	Document Type Definition for an XML document
ID	Identifier
IED	Intelligent Electronic Device
LDInst	Instantiated Logical Device