

STN	Komunikačné siete a systémy automatizácie elektrických staníc Časť 7-4: Základná komunikačná štruktúra Kompatibilné triedy logických uzlov a triedy údajov Zmena A1	STN EN 61850-7-4/A1 33 4850
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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. 08/20

STN EN 61850-7-4 z novembra 2010 sa bez tejto zmeny A1 môže používať do 18. 3. 2023.

Obsahuje: EN 61850-7-4:2010/A1:2020, IEC 61850-7-4:2010/AMD1:2020

EUROPEAN STANDARD

EN 61850-7-4:2010/A1

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2020

ICS 33.200

English Version

Communication networks and systems for power utility
automation - Part 7-4: Basic communication structure -
Compatible logical node classes and data object classes
(IEC 61850-7-4:2010/A1:2020)

Réseaux et systèmes de communication pour
l'automatisation des systèmes électriques- Partie 7-4:
Structure de communication de base - Classes de nœuds
logiques et classes d'objets de données compatibles
(IEC 61850-7-4:2010/A1:2020)

Kommunikationsnetze und -systeme für die
Automatisierung in der elektrischen Energieversorgung -
Teil 7-4: Grundlegende Kommunikationsstruktur -
Kompatible Logikknoten- und Datenklassen
(IEC 61850-7-4:2010/A1:2020)

This amendment A1 modifies the European Standard EN 61850-7-4:2010; it was approved by CENELEC on 2020-03-18. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN 61850-7-4:2010/A1:2020 (E)**European foreword**

The text of document 57/2102A/FDIS, future IEC 61850-7-4/A1, 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 61850-7-4:2010/A1:2020.

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) 2020-12-18
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2023-03-18

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In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 61869-9:2016	NOTE	Harmonized as EN IEC 61869-9:2019 (not modified)
IEC 62271-3:2015	NOTE	Harmonized as EN 62271-3:2015 (not modified)

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1 Where 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.

Add the following references:

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC/IEEE 61850-9-3	-	Communication networks and systems for power utility automation - Part 9-3: Precision time protocol profile for power utility automation	-	-
IEC/IEEE 61850-9-3	2016	Communication networks and systems for power utility automation - Part 9-3: Precision time protocol profile for power utility automation	-	-
IEC/IEEE 60255-118-1	2018	Measuring relays and protection equipment - Part 118-1: Synchrophasor for power systems - Measurements	-	-
IEC 60255-24	2013	Measuring relays and protection equipment - Part 24: Common format for transient data exchange (COMTRADE) for power systems	-	-

Delete the following reference:

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEEE 1588	-	Precision clock synchronization protocol for networked measurement and control systems	-	-



IEC 61850-7-4

Edition 2.0 2020-02

INTERNATIONAL STANDARD

NORME INTERNATIONALE



AMENDMENT 1
AMENDEMENT 1

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

**Réseaux et systèmes de communication pour l'automatisation des systèmes
électriques –
Partie 7-4: Structure de communication de base – Classes de noeuds logiques et
classes d'objets de données compatibles**



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

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

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IEC 61850-7-4

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AMENDMENT 1
AMENDEMENT 1

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**Réseaux et systèmes de communication pour l'automatisation des systèmes
électriques –
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et classes d'objets de données compatibles**

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FOREWORD

This amendment has been prepared by IEC technical committee 57: Power systems management and associated information exchange.

The motivation and goal of the amendment is to improve consistency of the data model over all application domains of IEC 61850. Data (Logical Nodes, Data Objects, Data Attributes) with the same semantics shall have the same naming where this part of IEC 61850 refers to Logical Nodes and Data Objects and IEC 61850-7-3 to the Data Attributes.

Therefore, the amendment complements and updates the second edition of this part of IEC 61850, which was published in 2010. It constitutes editorial revisions for consistency and technical corrections of bugs as far as interoperability is touched.

To reach this goal and to keep it for all future as common working source a comprehensive back-office UML version was created and will be maintained for future standard development. The published parts of IEC 61850 such as IEC 61850-7-4, on which the amendment is based, are generated automatically from the UML version. This allows publishing, voting and reading the various parts of IEC 61850-7 as in the past.

This amendment includes the following changes with respect to IEC 61850-7-4:2010:

- provides clarifications and corrections to the second edition of IEC 61850-7-4, based on the tissues = {671, 672, 674, 675, 676, 677, 679, 680, 682, 683, 685, 686, 689, 693, 694, 695, 696, 712, 713, 714, 715, 716, 724, 725, 732, 734, 735, 736, 742, 743, 744, 748, 749, 772, 773, 774, 775, 776, 800, 802, 808, 819, 830, 831, 835, 838, 842, 843, 844, 849, 871, 877, 878, 879, 881, 882, 902, 908, 909, 910, 911, 912, 913, 920, 928, 932, 933, 937, 939, 940, 952, 967, 991, 1007, 1029, 1044, 1046, 1071, 1075, 1076, 1077, 1081, 1086, 1117, 1119, 1128, 1137, 1139, 1176, 1177, 1190, 1191, 1203, 1205, 1229, 1235, 1236, 1244, 1250, 1256, 1258, 1259, 1261, 1269, 1273, 1278, 1282, 1292, 1294, 1310, 1316, 1330, 1331, 1333, 1339, 1347, 1348, 1364, 1368, 1375, 1380, 1390, 1404, 1411, 1420, 1423, 1425, 1426, 1456, 1568};
- adds to each functional LN group a parent abstract Logical node where the functional nodes are children from (full object oriented model). Since all abstract LNs are in a common clause, the relative position of the functional LNs is not changed within their clause.
- adds new abbreviated terms
- has extension of the list of abbreviate terms to be used for object names
- has more precise combination rules for abbreviated terms to object names
- has extensions by new logical nodes mainly from power quality domains and others
- has corrections of editorial errors.

Clauses 4 through 8 and their subclauses (except for 5.1, 5.2, and 5.3) and XML enumerations from Annex H are automatically generated from the UML model.

The structure of the document has been changed for the following reasons:

- To split the description of logical nodes preliminaries (Clause 5) from logical node specification (Clause 6). Some content of this clause has been moved from the previous description of logical nodes (was in IEC 61850-7-4:2007(revision A – 5.1 and 5.2).
- To include abstract logical nodes. These abstract logical nodes have been described in 6.2.
- The specification of logical nodes begins with 6.3 (was in IEC 61850-7-4:2007 (revision A – 5.3). In consequence all clauses in IEC 61850-7-4:2007 (revision A beginning with 5.3 count one number higher (beginning with 6.3) than they were in IEC 61850-7-4 (revision A).

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- The description of data object semantics and enumerations starts with Clause 7. A new clause has been included to specify the enumerations used in IEC 61850-7-4 separately.

Annex J and Annex K have been added.

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

FDIS	Report on voting
57/2102A/FDIS	57/2133/RVD

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

The content of this part of IEC 61850 is based on existing or emerging standards and applications. In particular the definitions are based upon:

- the specific data objects types defined in IEC 60870-5-101 and IEC 60870-5-103;
- the common class definitions from the Utility Communication Architecture 2.0: Generic Object Models for Substation and Feeder Equipment (GOMSFE) (IEEE TR 1550);
- CIGRE Report 34-03, Communication requirements in terms of data flow within substations, December 1996.

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

This IEC standard includes Code Components i.e. components that are intended to be directly processed by a computer. Such content is any text found between the markers <CODE BEGINS> and <CODE ENDS>, or otherwise is clearly labeled in this standard as a Code Component. In the current version of this document, such indication is made at the beginning of each concerned top-level clauses

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

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1 Scope

1.1 General

Add a new subtitle **1.1 General** before the first paragraph of the Scope.

Replace the last two bullet points of the fifth paragraph with the following new bullet points:

- information exchange for distribution energy resources,
- information exchange for metering,
- information exchanged for hydro power plants, or
- information exchange for wind generation plants.

Add the following new Subclauses 1.2 and 1.3 after the existing last paragraph of the Scope:

1.2 Namespace name and version

This new subclause is mandatory for any IEC 61850 namespace (as defined by IEC 61850-7-1:2011).

The parameters which identify this new release of this namespace are:

- Namespace Version: 2007
- Namespace Revision: B
- Namespace name: "IEC 61850-7-4:B"
- Namespace release: 3
- Namespace release date: 2019-10-31

IEC 61850-7-4 depends on IEC 61850-7-3:2007B latest release.

The table below provides an overview of all published versions of this namespace.

Edition	Publication date	Webstore	Namespace
Edition 1.0	2003-05	IEC 61850-7-4:2003	IEC 61850-7-4:2003
Edition 2.0	2010-03	IEC 61850-7-4:2010	IEC 61850-7-4:2007
Amendment 1 of Edition 2.0	2020-02	IEC 61850-7-4:2010/AMD1:2020	IEC 61850-7-4:2007B
Edition 2.1	2020-02	IEC 61850-7-4:2010+AMD1:2020 CSV	IEC 61850-7-4:2007B

1.3 Code Component distribution

The Code Component will be available in light and full version:

- Full version will contain definition of the whole LNs defined in this standard with the documentation associated and access will be restricted to purchaser of this part
- Light version will not contain the documentation but will contain the whole definition of the LNs as per full version, and this light version will be freely accessible on the IEC website for download, but the usage remains under the licensing conditions.

The link for downloading the light version of this code component is:

http://www.iec.ch/tc57/supportdocuments/IEC_61850-7-4.NSD.2007B3.light.zip

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- Full version will contain definition of the whole LNs defined in this standard with the documentation associated and access will be restricted to purchaser of this part
- Light version will not contain the documentation but will contain the whole definition of the LNs as per full version, and this light version will be freely accessible on the IEC website for download, but the usage remains under the licensing conditions.

The Code Components for IEC 61850 data models (like LN definition in this IEC standard) are available as the file format NSD defined by standard IEC 61850-7-7.

The Code Component included in this IEC standard are potentially subject to maintenance works and user shall select the latest release in the repository located at:
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The latest version/release of the document will be found by selecting the file IEC 61850-7-4.NSD.{VersionStateInfo}.full.zip with the filed VersionStateInfo of the highest value.

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- The copyright notice
- The identification of the code component
- The publication related to the code component
- The list of the electronic files which compose the code component
- An optional list of history files to track changes during the evolution process of the code component

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This is useful when InterOp Tissues need to be fixed. Then a new release of the Code Component will be released, which supersedes the previous release, and distributed through the IEC TC57 web site.

2 Normative references

Add the following new normative references:

IEC IEEE 61850-9-3, *Communication networks and systems for power utility automation - Part 9-3: Precision time protocol profile for power utility automation*

IEC/IEEE 61850-9-3:2016, *Communication networks and systems for power utility automation – Part 9-3: Precision time protocol profile for power utility automation*

IEC/IEEE 60255-118-1:2018, *Measuring relays and protection equipment – Part 118-1: Synchrophasor for power systems – Measurements*

IEC 60255-24:2013 / IEEE Std C37.111-2013, *Measuring relays and protection equipment – Part 24: Common format for transient data exchange (COMTRADE) for power systems*

Delete the following normative reference:

IEC 61850-7-4:2010/AMD1:2020

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IEEE 1588, *Precision clock synchronisation protocol for networked measurement and control systems*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN