SLOVENSKI STANDARD
oSIST prEN IEC 61850-7-40:2026

01-april-2026

Komunikacijska omrežja in sistemi za avtomatizacijo porabe električne energije - 7 -40. del: Osnovna komunikacijska struktura - Združljivi logični vozliščni in podatkovni razredi - Skupno

Communication networks and systems for power utility automation - Part 7-40: Basic communication structure - Compatible logical node classes and data object classes - Common

Réseaux et systèmes de communication pour l'automatisation des systèmes électriques - Partie 7-40: Structure de communication de base - Classes de noeuds logiques et classes d'objets de données compatibles - Partie fondamentale

Ta slovenski standard je istoveten z: **prEN IEC 61850-7-40:2026**

ICS:

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

oSIST prEN IEC 61850-7-40:2026 **en**

57/2871/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER: **IEC 61850-7-40 ED1**	
DATE OF CIRCULATION: **2026-02-13**	CLOSING DATE FOR VOTING: **2026-05-08**
SUPERSEDES DOCUMENTS: **57/2824/RR**	

IEC TC 57 : POWER SYSTEMS MANAGEMENT AND ASSOCIATED INFORMATION EXCHANGE	
SECRETARIAT: Germany	SECRETARY: Mr Heiko Englert
OF INTEREST TO THE FOLLOWING COMMITTEES:	HORIZONTAL FUNCTION(S):
ASPECTS CONCERNED: Digital content,Electricity transmission and distribution	
☒ SUBMITTED FOR CENELEC PARALLEL VOTING	☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING

Attention IEC-CENELEC parallel voting

The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting.

The CENELEC members are invited to vote through the CENELEC online voting system.

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TITLE:

Communication networks and systems for power utility automation – Part 7-40: Basic communication structure – Compatible logical node classes and data object classes – Common

PROPOSED STABILITY DATE: 2027

NOTE FROM TC/SC OFFICERS:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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COMMUNICATION NETWORKS AND SYSTEMS FOR POWER UTILITY AUTOMATION –

Part 7-40: Basic communication structure – Compatible logical node classes and data object classes – Common

FOREWORD

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International Standard IEC 61850-7-40 has been prepared by IEC technical committee 57: Power systems management and associated information exchange.

The IEC 61850-7-4 Edition 2.1 is re-organized into the following parts of “Basic communication structure – Compatible logical node classes and data object classes”, each hereinafter referred to by the specialized title indicated below:

- IEC 61850-7-4:2025 Edition 3 – Core part
- IEC 61850-7-40:2025 Edition 1 – Common part (– this document)
- IEC 61850-7-43:2025 Edition 1 – Primary equipment
- IEC 61850-7-44:2025 Edition 1 – Instrument transformers
- IEC 61850-7-400:2025 Edition 1 – Substation automation
- IEC 61850-7-401:2025 Edition 1 – Protection
- IEC 61850-7-440:2025 Edition 1 – Power quality and metering

Further in this document these are referenced as 7-4, 7-4n and 7-4nn.

This structure of IEC 61850-7-4 Edition 2.1 has been changed into several parts (7-4, 7-4n and 7-4nn) which allows to update individual parts without requiring a new edition to the core part. This enables the standard to meet time to market requirements more quickly.

As a consequence, the annexes of former IEC 61850-7-4 Edition 2.1 are now distributed according to their purpose. This document includes the following Annexes:

- Annex A (former Annex C) - Deprecated logical nodes classes in regard to this document. All deprecated logical node classes from IEC 61850-7-4 Edition 2.1 are found in 7-4 – Core part.
- Annex B (former Annex E) - Algorithms used in logical nodes for automatic control
- Annex C (former Annex I) - Conditions for element presence
- Annex D (former Annex J) - Compatibility of the different revisions of the standard
- Annex E (former Annex K) - Models principles and requirements for scheduling

IEC 61850-7-4 Edition 2.1 will not be subject to any further improvements with this series being published.

The new series cancels and replaces IEC 61850-7-4 Edition 2.1 which was last published in 2020 as a consolidated version.

Clauses 4 through 7 and their subclauses (except for 5.1, 5.2, and 5.3) are automatically generated from the UML model.

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

FDIS	Report on voting

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Table 1 shows all tracking information of IEC 61850-7-40:2025A namespace building-up

Table 1 – Tracking information of IEC 61850-7-40:2025A namespace building-up

Attribute	Content
Namespace IEC specific information	
Version of the UML model used for generating the document (informative)	WG10built18
Date of the UML model used for generating the document (informative)	2025-12-12
Autogeneration software name and version(informative)	j61850DocBuilder 02.05b based on jCleanCim beta9.4 (derived from jCleanCim 02-02)

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.

The committee has decided that the contents of the base publication and its amendment 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.

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

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

This part of IEC 61850 is part of a set of standards, the IEC 61850 series. IEC 61850 defines communication networks and systems for power utility automation, and more specifically the communication architecture for subsystems such as substation automation systems. The sum of all subsystems can result also in the description of the communication architecture for the overall power system management. The defined architecture provided in specific parts of IEC 61850-7-n gives both a power utility specific data model and a substation domain specific data model with abstract definitions of data objects classes and services independently from the specific protocol stacks, implementations, and operating systems. The mapping of these abstract classes and services to communication stacks is outside the scope of IEC 61850-7-n and can be found in IEC 61850-8-n and in IEC 61850-9-n.

IEC 61850-7-1 gives an overview of the basic communication architecture to be used for all applications in the power system domain. IEC 61850-7-3 defines common attribute types and common data classes related to all applications in the power system domain. The attributes of the common data classes can be accessed using services defined in IEC 61850-7-2. These common data classes are used in this part to define the compatible data object classes.

To reach interoperability, all data objects in the data model need a strong definition with regard to syntax and semantics. The semantics of the data objects is mainly provided by names assigned to common logical nodes defined in this part and the data objects they contain, as defined in this basic part, and dedicated logical nodes defined in domain specific parts such as for hydro power control systems. Interoperability is easiest if as many as possible of the data objects are defined as mandatory. Because of different approaches and technical features, some data objects, especially settings, were declared as optional in IEC 61850-7-4:2010 and its following editions. There are also data objects which were declared as conditional, i.e. they will become mandatory under some well-defined conditions. After some experience has been gained with this standard, this decision can be reviewed in the next edition of this part of IEC 61850-7.

It is noted that data objects with full semantics are only one of the elements required to achieve interoperability. The standardized access to the data objects is defined in compatible, power utility and domain specific services (see IEC 61850-7-2). Since data objects and services are hosted by devices (IED), a proper device model is also needed. To describe both the device capabilities and the interaction of the devices in the related system, a configuration language is also needed, as defined in IEC 61850-6 by the substation configuration description language (SCL).

The compatible logical node name and data object name definitions found in this part and the associated semantics are fixed. The syntax of the type definitions of all data objects classes is governed by abstract definitions provided in IEC 61850-7-2 and IEC 61850-7-3. Not all features of logical nodes are listed in this part; for example, data sets and logs are covered in IEC 61850-7-2.

COMMUNICATION NETWORKS AND SYSTEMS FOR POWER UTILITY AUTOMATION –

Part 7-40: Basic communication structure – Compatible logical node classes and data object classes – Common part

1 Scope

1.1 General

This part of IEC 61850 specifies the information model of devices and functions generally related to common use regarding applications in systems for power utility automation. In particular, it specifies the compatible logical node names and data object names for communication between intelligent electronic devices (IED). This includes the relationship between logical nodes and data objects.

The logical node names and data object names defined in this document are part of the class model introduced in IEC 61850-7-1 and defined in IEC 61850-7-2. These names are used to build the hierarchical object references applied for communicating with IEDs in systems for power utility automation and, especially, with IEDs in substations and on distribution feeders. The naming conventions of IEC 61850-7-2 are applied in this part.

To avoid private, incompatible extensions, this part specifies normative naming rules for multiple instances and private, compatible extensions of logical node (LN) classes and data object names. Any definition is based on IEC 61850 or on referenced well identified public documents.

This section does not include tutorial material. It provides content that assumes prior knowledge of IEC 61850-5 and IEC 61850-7-1, together with IEC 61850-7-3 and IEC 61850-7-2.

This standard and its direct counterparts (7-4, 7-4n and 7-4nn) are applicable to describe device models and functions for:

- substation and feeder equipment,
- substation-to-substation information exchange,
- substation-to-control centre information exchange,
- power plant-to-control centre information exchange,
- information exchange for distributed generation,
- information exchange for distributed energy resources,
- information exchange for metering,
- information exchanged for hydro power plants, or
- information exchange for wind generation plants.

Figure 1 provides a general overview of this standard, the groups of logical nodes and the new structure after the split. For convenience, the logical nodes are defined below in alphabetical order within its part.

Figure 2 gives an overview of the annexes used in the series of 7-4, 7-4n and 7-4nn.

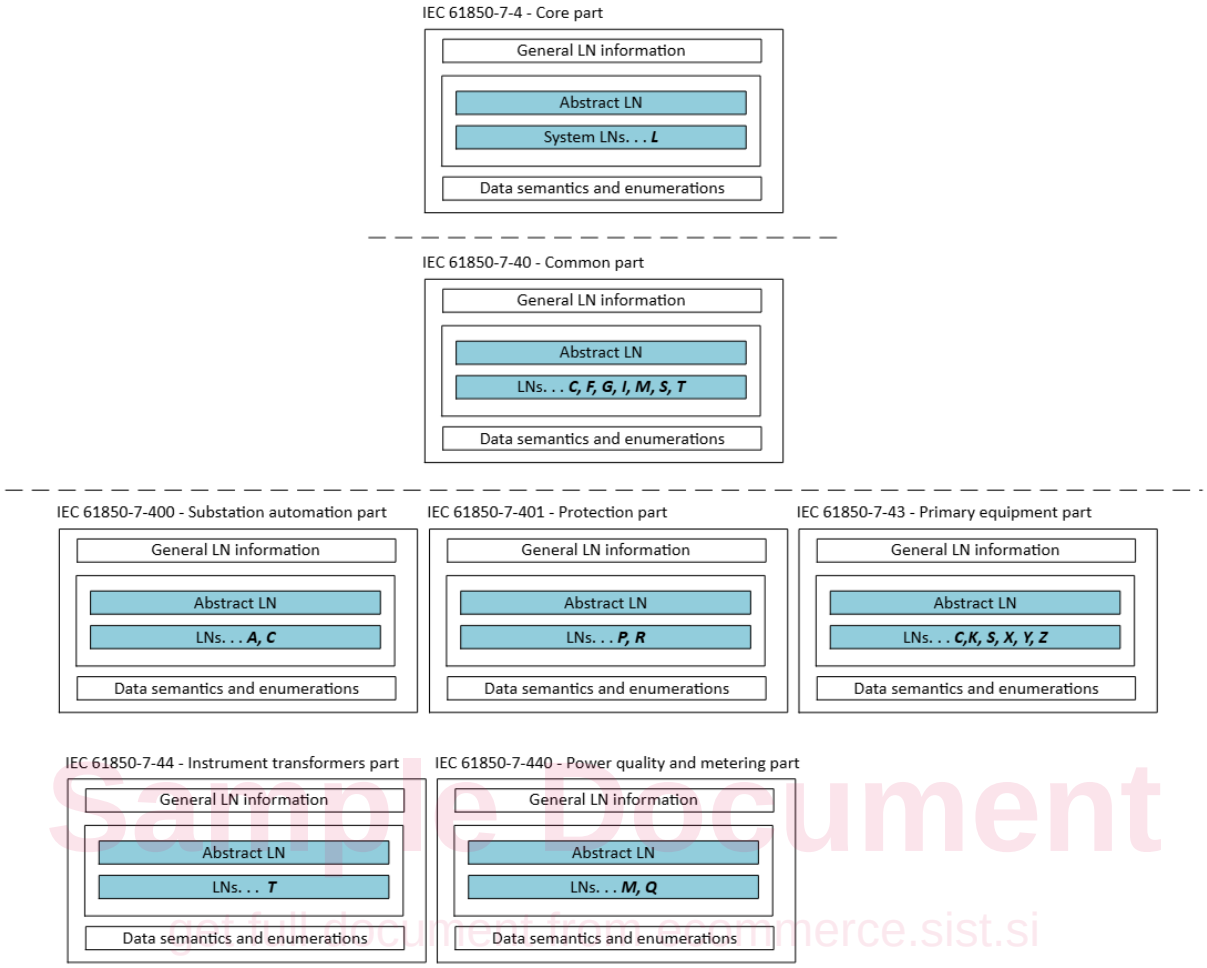

Figure 1 – Overview of this standard and relation of 7-4, 7-4n and 7-4nn series