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Communication networks and systems for power utility automation

Part 7.410: Basic communication structure — Hydroelectric power plants — Communication for monitoring and control



AS IEC 61850.7.410:2025

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Structure of Standards

A Standard always has the following parts:

(i) The Preface states who developed the Standard, what the Standard is aiming to do, and how it relates to other documents.

(ii) The Scope states what the Standard is about, what it covers and what it does not cover.

(iii) The Normative references clause lists other documents that are referenced in the Standard as part of requirements.

(iv) The Terms and definitions clause defines important terms to help with understanding the Standard.

A Standard may also include other parts, such as the following:

(1) A normative appendix sets additional requirements that need to be conformed to.

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(3) A Bibliography lists documents referenced in the Standard but not as part of requirements.

Many Standards include notes. Notes provide recommendations and/or guidance only. They never contain requirements.

Preface

This Standard was prepared by the Standards Australia Committee EL-050, Power System Control and Communication.

The objective of this document is to specify the additional common data classes, logical nodes and data objects required for the use of IEC 61850 in a hydropower plant. The main changes with respect to the previous edition are as follows:

(a) The logical nodes in IEC 61850-7-410:2007 that were not specific to hydropower plants have been transferred to AS IEC 61850.7.4:2025.

(b) The definitions of logical nodes in this document have been updated.

(c) Most of the modelling examples and background information included in IEC 61850-7-410:2007 have been transferred to SA TR IEC 61850.7.510:2025.

This document includes additional general-purpose logical nodes that were not included in AS IEC 61850.7.4:2025, but are required in order to represent the complete control and monitoring system of a hydropower plant.

This document is identical to, and has been reproduced from, IEC 61850-7-410:2012+AMD1:2015 CSV, *Communication networks and systems for power utility automation — Part 7-410: Basic communication structure — Hydroelectric power plants — Communication for monitoring and control*.

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(i) In the source text “this part of IEC 61850” is to be read as “this document”.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMUNICATION NETWORKS AND SYSTEMS FOR POWER UTILITY AUTOMATION –

Part 7-410: Basic communication structure – Hydroelectric power plants – Communication for monitoring and control

FOREWORD

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This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.

IEC 61850-7-410 edition 2.1 contains the second edition (2012-10) [documents 57/1274/FDIS and 57/1289/RVD] and its amendment 1 (2015-11) [documents 57/1607/FDIS and 57/1633/RVD].

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

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International Standard IEC 61850-7-410 has been prepared by technical committee 57: Power systems management and associated information exchange.

This edition includes the following significant technical changes with respect to the previous edition:

a) The logical nodes in IEC 61850-7-410:2007 that were not specific to hydropower plants have been transferred to IEC 61850-7-4:2010 and have been removed from this edition of IEC 61850-7-410.
b) The definitions of logical nodes in this edition of IEC 61850-7-410 have been updated using the format introduced in IEC 61850-7-4:2010.
c) Most of the modelling examples and background information that was included in IEC 61850-7-410:2007 has been transferred to IEC/TR 61850-7-510.
d) However, this edition of IEC 61850-7-410 includes additional general-purpose logical nodes that were not included in IEC 61850-7-4:2010, but are required in order to represent the complete control and monitoring system of a hydropower plant.

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

A list of all the parts in the IEC 61850 series, published 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.

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COMMUNICATION NETWORKS AND SYSTEMS FOR POWER UTILITY AUTOMATION –

Part 7-410: Basic communication structure – Hydroelectric power plants – Communication for monitoring and control

1 Scope

This part of IEC 61850 specifies the additional common data classes, logical nodes and data objects required for the use of IEC 61850 in a hydropower plant.

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

IEC 61850-7-1, *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 for substations and feeder equipment – Common data classes*

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*

3 Terms and definitions

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

4 Abbreviated terms

The terms listed in Table 1 are used to build concatenated Data Object Names in this document. IEC 61850-7-410 inherits all the abbreviated terms described in Clause 4 of IEC 61850-7-4:2010.

NOTE Data Object Names in the logical nodes representing PSS filter functions follow names in IEEE 421.5 as closely as possible. These names are not included in Table 1.

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