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Communication networks and systems for power utility automation - Part 1-1: Introduction and overview

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CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FOREWORD

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IEC TR 61850-1-1 has been prepared by IEC technical committee 57: Power systems management and associated information exchange. It is a Technical Report.

This document replaces the second edition of IEC TR 61850-1 published in 2013. The number has been changed from IEC TR 61850-1 to IEC TR 61850-1-1, as in the meantime there is also a document with the number IEC 61850-1-2. This edition constitutes a technical revision.

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

a) Updates to the TISSUE process.
b) Descriptions of the namespace concepts.
c) Renumbering the document from IEC 61850-1 to 61850-1-1.

The text of this Technical Report is based on the following documents:

Draft	Report on voting
57/2859/DTR	57/2890/RVDTR

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

The language used for the development of this Technical Report is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all 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 this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

– reconfirmed,
– withdrawn, or
– revised.

This corrected version of IEC TR 61850-1-1:2026 incorporates the following correction:

– Addition of bibliographic reference numbers in the content

INTRODUCTION

IEC 61850-1-1 is an introduction and overview of the IEC 61850 (all parts) [1] standard series. It describes the philosophy, work approach and contents of the other parts.

Table 1 gives an overview of all published versions of this technical report.

Table 1 – Published versions of this technical report

Edition	Publication date	Webstore
Edition 1	2003-04	IEC TR 61850-1:2003
Edition 2	2013-03	IEC TR 61850-1:2013
Edition 1	2026-xx	IEC TR 61850-1-1:2026

1 Scope

This technical report is applicable to *power utility automation systems* (PUAS). It defines the communication between intelligent electronic devices (IEDs) in such a system, and the related system requirements.

This part gives an introduction and overview of the IEC 61850 (all parts) [1] standard series. It refers to and might include text and figures coming from other parts of the IEC 61850 (all parts) [1] standard series.

2 Normative references

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.

IEC 61850 (series), *Communication networks and systems for power utility automation*

Bibliography

[1] IEC 61850 (all parts), *Communication networks and systems for power utility automation*

[2] IEEE 100:2000, The Authoritative Dictionary of IEEE Standards Terms, Seventh Edition

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

[4] IEC 61850-7-2, *Communication networks and systems for power utility automation - Part 7-2: Basic information and communication structure - Abstract communication service interface (ACSI)*

[5] IEC 61850-7-410, *Communication networks and systems for power utility automation - Part 7-410: Basic communication structure - Hydroelectric power plants - Communication for monitoring and control*

[6] IEC 61850-7-420, *Communication networks and systems for power utility automation - Part 7-420: Basic communication structure - Distributed energy resources and distribution automation logical nodes*

[7] IEC 61400-25 (all parts), *Communications for monitoring and control of wind power plants*

[8] IEC TR 61850-90-1, *Communication networks and systems for power utility automation - Part 90-1: Use of IEC 61850 for the communication between substations*

[9] IEC TR 61850-90-2, *Communication networks and systems for power utility automation - Part 90-2: Using IEC 61850 for communication between substations and control centres*

[10] IEC 62357 (all parts), *Power systems management and associated information exchange*

[11] IEC 61970 (all parts), *Energy management system application program interface (EMS-API)*

[12] IEC 61968 (all parts), *Application integration at electric utilities - System interfaces for distribution management*

[13] IEC 61850-5:2013, *Communication networks and systems for power utility automation - Part 5: Communication requirements for functions and device models*

[14] IEC TR 61850-90-4, *Communication networks and systems for power utility automation - Part 90-4: Network engineering guidelines*

[15] IEC TS 61850-1-2, *Communication networks and systems for power utility automation - Part 1-2: Guideline on extending IEC 61850*

[16] IEC TS 61850-2, *Communication networks and systems for power utility automation - Part 2: Glossary*

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

[18] IEC 61850-4, *Communication networks and systems for power utility automation - Part 4: System and project management*

[19] IEC 60870-5-101, *Telecontrol equipment and systems - Part 5-101: Transmission protocols - Companion standard for basic telecontrol tasks*

[20] IEC 60870-5-104, *Telecontrol equipment and systems - Part 5-104: Transmission protocols - Network access for IEC 60870-5-101 using standard transport profiles*

[21] IEC TS 61850-80-1, *Communication networks and systems for power utility automation - Part 80-1: Guideline to exchanging information from a CDC-based data model using IEC 60870-5-101 or IEC 60870-5-104*

[22] IEC TR 61850-7-5, *Communication networks and systems for power utility automation - Part 7-5: IEC 61850 modelling concepts*

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

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

[25] IEC 61850-8-1, *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*

[26] IEC 61850-9-2, *Communication networks and systems for power utility automation - Part 9-2: Specific communication service mapping (SCSM) - Sampled values over ISO/IEC 8802-3*

[27] IEC 61850-10, *Communication networks and systems for power utility automation - Part 10: Conformance testing*

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

[29] IEC 61850-7 (all parts), *Communication networks and systems for power utility automation - Basic communication structure*

[30] IEC TS 61850-7-7, *Communication networks and systems for power utility automation - Part 7-7: Machine-processable format of IEC 61850-related data models for tools*

[31] IEC 60870-5-103, *Telecontrol equipment and systems - Part 5-103: Transmission protocols - Companion standard for the informative interface of protection equipment*

[32] IEC 81346-1, *Industrial systems, installations and equipment and industrial products - Structuring principles and reference designations - Part 1: Basic rules*

[33] IEC 62351 (all parts), *Power systems management and associated information exchange - Data and communications security*

[34] ISO 9001:2008, *Quality management systems - Requirements*