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Communication networks and systems in substations –

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

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FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organisation for standardisation comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardisation in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organisations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organisation for Standardisation (ISO) in accordance with conditions determined by agreement between the two organisations.
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3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
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6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61850-7-3 has been prepared by IEC technical committee 57: Power system control and associated communications.

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

FDIS	Report on voting
57/618/FDIS	57/635/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: Glossary [1]

Part 3: General requirements

Part 4: System and project management

Part 5: Communication requirements for functions and device models [2]

Part 6: Configuration description language for communication in electrical substations related to IEDs [1]

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/IEC 9506-1 and ISO/IEC 9506-2) and to ISO/IEC 8802-3 [1]

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 [1]

Part 10: Conformance testing [1]

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 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 & Feeder Equipment (GOMSFE) (IEEE TR 1550).*

The committee has decided that the contents of this publication will remain unchanged until 2005. At this date, the publication will be

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

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

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1 Under consideration.

2 To be published.

INTRODUCTION

This document is part of a set of specifications, which details layered substation communication architecture. This architecture has been chosen to provide abstract definitions of classes and services such that the specifications are independent of specific protocol stacks and objects. The mapping of these abstract classes and services to communication stacks is outside the scope of IEC 61850-7-x and may be found in IEC 61850-8-x (station bus) and IEC 61850-9-x (process bus).

IEC 61850-7-1 gives an overview of this communication architecture. This part of IEC 61850 defines common attribute types and common data classes related to substation applications. These common data classes are used in IEC 61850-7-4. To define compatible data classes, the attributes of the instances of data shall be accessed using services defined in IEC 61850-7-2.

This part is used to specify the **abstract common data class** definitions. These abstract definitions shall be mapped into concrete object definitions that are to be used for a particular protocol (for example MMS, ISO 9506).

COMMUNICATION NETWORKS AND SYSTEMS IN SUBSTATIONS –

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

1 Scope

This part of IEC 61850 specifies common attribute types and common data classes related to substation applications. In particular it specifies:

- common data classes for **status information**,
- common data classes for **measured information**,
- common data classes for **controllable status information**,
- common data classes for **controllable analogue set point information**,
- common data classes for **status settings**,
- common data classes for **analogue settings** and
- **attribute types** used in these common data classes.

This international standard is applicable to the description of device models and functions of substations and feeder equipment.

This international standard may also be applied, for example, to describe device models and functions for:

- substation to substation information exchange,
- substation to control centre information exchange,
- power plant to control centre information exchange,
- information exchange for distributed generation, or
- information exchange for metering.

2 Normative references

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 61850-2, *Communication networks and systems in substations – Part 2: Glossary* [3]

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

ISO 1000, SI units and recommendations for the use of their multiples and of certain other units

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3 Under consideration.