

**Communication networks and systems for power utility
automation - Part 7-3: Basic communication structure -
Common data classes**

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 61850-7-3:2011 sisaldab Euroopa standardi EN 61850-7-3:2011 ingliskeelset teksti.

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**Communication networks and systems for power utility automation -
Part 7-3: Basic communication structure -
Common data classes
(IEC 61850-7-3:2010)**

Réseaux et systèmes de communication
pour l'automatisation des systèmes
électriques -
Partie 7-3: Structure de communication de
base -
Classes de données communes
(CEI 61850-7-3:2010)

Kommunikationsnetze und -systeme für
die Automatisierung in der elektrischen
Energieversorgung -
Teil 7-3: Grundlegende
Kommunikationsstruktur -
Gemeinsame Datenklassen
(IEC 61850-7-3:2010)

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CENELEC

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

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Foreword

The text of document 57/1087/FDIS, future edition 2 of IEC 61850-7-3, prepared by IEC TC 57, Power systems management and associated information exchange, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61850-7-3 on 2010-12-07.

This European Standard supersedes EN 61850-7-3:2003.

Compared to EN 61850-7-3:2003, this edition:

- defines new common data classes used for new standards defining object models for other domains based on EN 61850 and for the representation of statistical and historical data;
- provides clarifications and corrections to EN 61850-7-3:2003.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

The following dates were fixed:

- | | | |
|--|-------|------------|
| – latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement | (dop) | 2011-09-07 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn | (dow) | 2013-12-07 |

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61850-7-3:2010 was approved by CENELEC as a European Standard without any modification.

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

- | | | |
|--------------------|------|---|
| IEC 61850-8 series | NOTE | Harmonized in EN 61850-8 series (not modified). |
| IEC 61850-9 series | NOTE | Harmonized EN 61850-9 series (not modified). |
-

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC/TS 61850-2	-	Communication networks and systems in substations - Part 2: Glossary	-	-
IEC 61850-7-1	-	Communication networks and systems in substations - Part 7-1: Basic communication structure for substation and feeder equipment - Principles and models	EN 61850-7-1	-
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)	EN 61850-7-2	-
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	EN 61850-7-4	-
ISO 4217	-	Codes for the representation of currencies and funds	-	-
IEEE C37.118	2005	IEEE Standard for Synchrophasors for Power Systems	-	-

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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 constructed attributed classes and common data classes related to applications in the power system using IEC 61850 modeling concepts like substations, hydro power or distributed energy resources. These common data classes are used in IEC 61850-7-4 to define compatible dataObject classes. The SubDataObjects, DataAttributes or SubAttributes of the instances of dataObject are accessed using services defined in IEC 61850-7-2.

This part of IEC 61850 is used to specify the abstract common data class and constructed attribute class definitions. These abstract definitions are mapped into concrete object definitions that are to be used for a particular protocol (for example MMS, ISO 9506 series).

Note that there are common data classes used for service tracking, that are defined in IEC 61850-7-2.

COMMUNICATION NETWORKS AND SYSTEMS FOR POWER UTILITY AUTOMATION –

Part 7-3: Basic communication structure – Common data classes

1 Scope

This part of IEC 61850 specifies constructed attribute classes 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 control,
- 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/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*¹

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)*

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*

¹ To be published.

IEEE C37.118:2005, *IEEE Standard for Synchrophasors for Power Systems*

ISO 4217, *Codes for the representation of currencies and funds*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC/TS 61850-2 and IEC 61850-7-2 apply.

4 Abbreviated terms

CDC	common data class
dchg	trigger option for data-change
dupd	trigger option for data-update
FC	functional constraint
qchg	trigger option for quality-change
TrgOp	trigger option

NOTE Abbreviations used for the identification of the common data classes and as names of the attributes are specified in the specific clauses of this document and are not repeated here.

5 Conditions for attribute inclusion

This clause lists general conditions that specify the presence of an attribute. Table 1 gives the conditions for presence of attributes.

Table 1 – Conditions for presence of attributes

Abbreviation	Condition
M	Attribute is mandatory. Attribute shall exist on any CDC type instance.
O	Attribute is optional. Attribute may or may not exist on any CDC type instance.
PICS_SUBST	Attribute is mandatory, if substitution is supported (for substitution, see IEC 61850-7-2), otherwise forbidden.
GC_1	At least one of the attributes shall be present for a given instance of DataObject / SubDataObject.
GC_2_n	All or none of the data attributes belonging to the same group (n) shall be present for a given instance of DataObject / SubDataObject.
GC_1_EXCL	At most one of the data objects shall be present for a given instance.
GC_CON_attr	A configuration data attribute shall only be present, if the (optional) specific data attribute (attr) to which this configuration relates is also present.
GC_2_XOR_n	All or none of a group (n) shall be present. Groups are exclusive, but one group shall be present.
AC_LN0_M	The attribute shall be present if the DataObject NamPit belongs to LLN0; otherwise it may be optional.
AC_LN0_EX	The attribute shall be present only if the DataObject NamPit belongs to LLN0 (applies to IdNs in CDC LPL only).
AC_DLD_M	The attribute shall be present, if LN name space of this LN deviates from the LN name space referenced by IdNs of the logical device in which this LN is contained (applies to InNs in CDC LPL only).
AC_DLN_M	The attribute shall be present, if the data name space of this data deviates from the data name space referenced by either InNs of the logical node in which the data is contained or, if there is no InNs, IdNs of the logical device in which the data is contained (applies to dataNs in all CDCs only).
AC_DLND_A_M	The attribute shall be present, if CDC name space of this data deviates from the CDC