

DIN EN 61850-7-3/A1



ICS 33.040.40

Entwurf

Einsprüche bis 2018-07-04
Vorgesehen als Änderung von
DIN EN 61850-7-3:2011-08

**Kommunikationsnetze und -systeme für die Automatisierung in der elektrischen Energieversorgung –
Teil 7-3: Grundlegende Kommunikationsstruktur –
Gemeinsame Datenklassen
(IEC 57/1708/CDV:2016);
Englische Fassung EN 61850-7-3:2011/prA1:2016**

Communication networks and systems for power utility automation –
Part 7-3: Basic communication structure –
Common data classes
(IEC 57/1708/CDV:2016);
English version EN 61850-7-3:2011/prA1:2016

Réseaux et systèmes de communication pour l'automatisation des systèmes électriques –
Partie 7-3: Structure de communication de base –
Classes de données communes
(IEC 57/1708/CDV:2016);
Version anglaise EN 61850-7-3:2011/prA1:2016

Anwendungswarnvermerk

Dieser Norm-Entwurf mit Erscheinungsdatum 2018-05-04 wird der Öffentlichkeit zur Prüfung und Stellungnahme vorgelegt.

Weil die beabsichtigte Norm von der vorliegenden Fassung abweichen kann, ist die Anwendung dieses Entwurfs besonders zu vereinbaren.

Stellungnahmen werden erbeten

- vorzugsweise online im Norm-Entwurfs-Portal von DIN unter www.din.de/go/entwuerfe bzw. für Norm-Entwürfe der DKE auch im Norm-Entwurfs-Portal der DKE unter www.entwuerfe.normenbibliothek.de, sofern dort wiedergegeben;
- oder als Datei per E-Mail an dke@vde.com möglichst in Form einer Tabelle. Die Vorlage dieser Tabelle kann im Internet unter www.din.de/go/stellungnahmen-norm-entwuerfe oder für Stellungnahmen zu Norm-Entwürfen der DKE unter www.dke.de/stellungnahme abgerufen werden;
- oder in Papierform an die DKE Deutsche Kommission Elektrotechnik Elektronik Informationstechnik in DIN und VDE, Stresemannallee 15, 60596 Frankfurt am Main.

Die Empfänger dieses Norm-Entwurfs werden gebeten, mit ihren Kommentaren jegliche relevanten Patentrechte, die sie kennen, mitzuteilen und unterstützende Dokumentationen zur Verfügung zu stellen.

Gesamtumfang 71 Seiten

DKE Deutsche Kommission Elektrotechnik Elektronik Informationstechnik in DIN und VDE

Nationales Vorwort

Die Englische Fassung des europäischen Dokuments EN 61850-7-3:2011/prA1:2016 „Kommunikationsnetze und -systeme für die Automatisierung in der elektrischen Energieversorgung – Teil 7-3: Grundlegende Kommunikationsstruktur – Gemeinsame Datenklassen“ (Entwurf in der Umfrage) ist unverändert in diesen Norm-Entwurf übernommen worden.

Die Internationale Elektrotechnische Kommission (IEC) und das Europäische Komitee für Elektrotechnische Normung (CENELEC) haben vereinbart, dass ein auf IEC-Ebene erarbeiteter Entwurf für eine Internationale Norm zeitgleich (parallel) bei IEC und CENELEC zur Umfrage (CDV-Stadium) und Abstimmung als FDIS (en: Final Draft International Standard) bzw. Schluss-Entwurf für eine Europäische Norm gestellt wird, um eine Beschleunigung und Straffung der Normungsarbeit zu erreichen. Dem entsprechend ist das internationale Dokument IEC 57/1708/CDV:2016 „Communication networks and systems for power utility automation – Part 7-3: Basic communication structure – Common data classes“ unverändert in den Entwurf EN 61850-7-3:2011/prA1:2016 übernommen worden.

Das internationale Dokument wurde vom TC 57 „Power systems management and associated information exchange“ der Internationalen Elektrotechnischen Kommission (IEC) erarbeitet.

Bei der Abstimmung zu dem Europäischen Schluss-Entwurf bei CENELEC und dem Internationalen Schluss-Entwurf bei IEC [Final Draft International Standard (FDIS)] sind jeweils nur „JA/NEIN“-Entscheidungen möglich, wobei „NEIN“-Entscheidungen fundiert begründet werden müssen. Dokumente, die bei CENELEC als Europäische Norm angenommen und ratifiziert werden, sind unverändert als Deutsche Normen zu übernehmen.

Für dieses Dokument ist das nationale Arbeitsgremium K 952 „Netzelektrotechnik“ der DKE Deutsche Kommission Elektrotechnik Elektronik Informationstechnik in DIN und VDE (www.dke.de) zuständig.

Für den Fall einer undatierten Verweisung im normativen Text (Verweisung auf ein Dokument ohne Angabe des Ausgabedatums und ohne Hinweis auf eine Abschnittsnummer, eine Tabelle, ein Bild usw.) bezieht sich die Verweisung auf die jeweils aktuellste Ausgabe des in Bezug genommenen Dokuments.

Für den Fall einer datierten Verweisung im normativen Text bezieht sich die Verweisung immer auf die in Bezug genommene Ausgabe des Dokuments.

Der Zusammenhang der zitierten Dokumente mit den entsprechenden deutschen Dokumenten ergibt sich, soweit ein Zusammenhang besteht, grundsätzlich über die Nummer der entsprechenden IEC-Publikation. Beispiel: IEC 60068 ist als EN 60068 als Europäische Norm durch CENELEC übernommen und als DIN EN 60068 ins Deutsche Normenwerk aufgenommen.

Das Präsidium des DIN hat mit Präsidialbeschluss 1/2004 festgelegt, dass DIN-Normen, deren Inhalt sich auf internationale Arbeitsergebnisse der Informationsverarbeitung gründet, unter bestimmten Bedingungen allein in englischer Sprache veröffentlicht werden dürfen. Diese Bedingungen sind für den vorliegenden Normentwurf erfüllt.

Da sich die Benutzer des vorliegenden Normentwurfs der englischen Sprache als Fachsprache bedienen, wird die Englische Fassung der EN 61850-7-3:2011/prA1:2016 veröffentlicht. Zu deren Abschnitt 1, der den Anwendungsbereich festlegt, und Abschnitt 3, der die Begriffe festlegt, wurde eine Übersetzung angefertigt und als informativer Nationaler Anhang NA des vorliegenden Normentwurfs hinzugefügt. Für viele der verwendeten Begriffe existieren keine gebräuchlichen deutschen Benennungen, da sich die deutschen Anwender in der Regel ebenfalls der englischen Benennungen bedienen. Dieser Normentwurf steht nicht in unmittelbarem Zusammenhang mit Rechtsvorschriften und ist nicht als Sicherheitsnorm anzusehen.

Es ist vorgesehen, auch bei der entsprechenden zukünftigen Deutschen Norm auf die deutsche Sprachfassung zu verzichten und diese in der englischsprachigen Fassung zu veröffentlichen.

Es wird auf die Möglichkeit hingewiesen, dass einige Elemente dieses Dokuments Patentrechte berühren können. IEC ist nicht dafür verantwortlich, einige oder alle diesbezüglichen Patentrechte zu identifizieren.

Das Original-Dokument enthält Bilder in Farbe, die in der Papierversion in einer Graustufen-Darstellung wiedergegeben werden. Elektronische Versionen dieses Dokuments enthalten die Bilder in der originalen Farbdarstellung.

Nationaler Anhang NA (informativ)

Auszugsweise Übersetzung^{N1)}

1 Anwendungsbereich

Den gesamten Inhalt aus Abschnitt 1 in den Unterabschnitt 1.1 „Allgemeines“ verschieben.

Folgende Unterabschnitt hinzufügen:

1.2 Namespace name and version

Dieser neue Abschnitt ist obligatorisch für alle IEC 61850-Namensräume (wie in Teil 7-1 von DIN EN 61850, Ausgabe 2 festgelegt).

Die folgenden Parameter identifizieren diese neue Version dieses Namensraums:

- Version des Namensraums: 2007
- Überarbeitung des Namensraums: B
- UML-Modelldatei mit dieser Namensraumversion: wg10uml02v18-wg18uml02v11b-wg17uml02v17c-jwg25uml02v04c.eap, UML model version WG10UML02v18
- Veröffentlichungsdatum des Namensraums: 2015-12-05
- Name des Namensraums: "IEC 61850-7-3:2007B"

3 Begriffe

Text ersetzen durch:

3.1 Allgemeines

Für die Anwendung dieses Dokuments gelten die Begriffe nach IEC/TS 61850-2 und DIN EN 61850-7-2.

3.2

abstract

eine Klasse abstrakter gemeinsamer Daten, die nie instanziiert wird und dazu dient, allgemeine Attribute in semantisch bedeutsamen Entitäten zusammenzufassen, sodass sie für die Wiederverwendung in eine konkrete Klasse gemeinsamer Daten übernommen werden können

3.3

statistics

eine Klasse statistischer gemeinsamer Daten, die in der Instanz abgeleiteter statistischer logischer Knoten (sowie nicht abgeleiteter statischer logischer Knoten) als Typ eines Datenobjekts verwendet werden kann

Anmerkung 1 zum Begriff: Eine Klasse gemeinsamer Daten, die nicht als Statistik (en: statistics) gekennzeichnet ist, darf nicht im Kontext von abgeleiteten statistischen logischen Knoten verwendet werden.

^{N1)} Nationale Fußnote: Die Nummerierung aus IEC 57/1708/CDV:2016-06 wurde beibehalten.

3.4 abgelehntes Element

wird in der aktuellen Ausgabe der Norm weiterhin unterstützt, um eine ausreichende Abwärtskompatibilität zu gewährleisten, entfällt aber planmäßig in zukünftigen Versionen

Anmerkung 1 zum Begriff: Zu einem abgelehnten Element werden die entsprechenden Informationen darüber bereitgestellt, welche alternativen Elemente stattdessen zu verwenden sind.

Document history

Any person intervening in the present document is invited to complete the table below before sending the document elsewhere. The purpose is to allow all actors to see all changes introduced and the intervening persons.

Any important message to IEC editors should also be included in the table below.

Name of intervening person	Document received		Brief description of the changes introduced	Document sent	
	From	Date		To	Date
Ch. Brunner			Incorporated WG comments on draft and created "61850-7-3-Ed2-Amd1_CDV_160215_SentToIEC"		
Ch. Brunner			Added this Doc history and sent document "61850-7-3-Ed2-1_Amd_CDV_SentToIEC.docx"	Heiko Englert	1.3.16
M. Noeth	Ch. Brunner	2016- 03-22	CDV document	CO	2016- 04-04

This table will be removed by IEC editors before FDIS circulation (in case of IS) or before final publication (in case of TS or TR).

CONTENTS

FOREWORD.....	6
INTRODUCTION.....	10
1 Scope.....	13
1.2 Namespace name and version.....	13
2 Normative references	13
3 Terms and definitions	13
4 Abbreviated terms	14
5 Conditions for attribute inclusion	17
6 Constructed attribute classes	18
6.1 General	18
6.2 Quality	18
6.3 Analogue value	18
6.4 Analogue value control (AnalogueValueCtl).....	18
6.5 Analogue float value control (AnalogueValueCtlF)	19
6.6 Analogue integer value control (AnalogueValueCtlInt)	19
6.7 Configuration of analogue value	19
6.8 Range configuration	19
6.9 Step position with transient indication.....	20
6.10 Pulse configuration.....	20
6.11 Originator	21
6.12 Unit definition	21
6.13 Vector definition	21
6.14 Point definition	21
6.15 CtlModels definition.....	21
6.16 SboClasses definition.....	21
6.17 Cell	21
6.18 CalendarTime definition.....	21
7 Common data class specifications	21
7.1 General	21
7.2 Name spaces	22
7.2 Modelling introduction	22
7.2.1 General	22
7.2.2 <<abstract>> Common attributes for primitive CDC (BasePrimitiveCDC).....	23
7.2.3 <<abstract>> Common attributes for composed CDC (BaseComposedCDC)	23
7.2.4 <<abstract>> Common attributes for substitution (SubstitutionCDC).....	23
7.3 Common data class specifications for status information	25
7.3.1 General	25
7.3.2 Single point status (SPS).....	25
7.3.3 Double point status (DPS)	25
7.3.4 Integer status (INS)	26
7.3.5 Enumerated status (ENS)	26
7.3.6 Protection activation information (ACT)	26
7.3.7 Directional protection activation information (ACD).....	27
7.3.8 Security violation counting (SEC)	27

7.3.9	Binary counter reading (BCR)	27
7.3.10	Histogram (HST).....	27
7.3.11	Visible string status (VSS).....	27
7.3.12	Object reference status (ORS).....	27
7.4	Common data class specifications for measurand information	28
7.4.1	General	28
7.4.2	Measured value (MV)	29
7.4.3	Complex measured value (CMV)	29
7.4.4	Sampled value (SAV)	30
7.4.5	Phase to ground/neutral related measured values of a three-phase system (WYE).....	30
7.4.6	Phase to phase related measured values of a three-phase system (DEL).....	30
7.4.7	Sequence (SEQ)	30
7.4.8	Harmonic value (HMV).....	31
7.4.9	Harmonic value for WYE (HWYE)	32
7.4.10	Harmonic value for DEL (HDEL)	32
7.5	Common data class specifications for controls	33
7.5.1	General	33
7.5.2	Controllable single point (SPC).....	37
7.5.3	Controllable double point (DPC)	37
7.5.4	Controllable integer status (INC).....	37
7.5.5	Controllable enumerated status (ENC).....	37
7.5.6	Binary controlled step position information (BSC)	37
7.5.7	Integer controlled step position information (ISC)	38
7.5.8	Controllable analogue process value (APC).....	38
7.5.9	Binary controlled analog process value (BAC)	38
7.6	Common data class specifications for status settings	39
7.6.1	General	39
7.6.2	Single point setting (SPG)	39
7.6.3	Integer status setting (ING)	39
7.6.4	Enumerated status setting (ENG)	39
7.6.5	Object reference setting (ORG)	40
7.6.6	Time setting group (TSG)	40
7.6.7	Currency setting group (CUG)	40
7.6.8	Visible string setting (VSG).....	40
7.7	Common data class specifications for analogue settings	40
7.7.1	General	40
7.7.2	Analogue setting (ASG)	41
7.7.3	Setting curve (CURVE).....	42
7.7.4	Curve shape setting (CSG).....	43
7.8	Common data class specifications for description information	43
7.8.1	General	43
7.8.2	Device name plate (DPL).....	43
7.8.3	Logical node name plate (LPL)	43
7.8.4	Curve shape description (CSD)	43
7.8.5	Visible string description (VSD)	43
7.9	Common data class specifications for service tracking	44
7.9.1	General	44

7.9.2	Common Service Tracking (CST).....	45
7.9.3	Buffered report tracking service (BTS).....	45
7.9.4	Unbuffered report tracking service (UTS).....	45
7.9.5	Log control block tracking service (LTS).....	45
7.9.6	GOOSE control block tracking service (GTS).....	45
7.9.7	MSVCB tracking service (MTS).....	45
7.9.8	USVCB tracking service (NTS)	46
7.9.9	SGCB tracking service (STS).....	46
7.9.10	<<abstract>> Control service tracking (CTS)	46
8	Data attribute semantic.....	46
8	Enumerated data attribute types	48
Annex A	(normative) Value range for units and multiplier	49
Annex B	(informative) Functional constraints	50
Annex C	(normative) Tracking of configuration revisions	53
Annex D	(normative) SCL enumerations	54
Annex E	(informative) Conditions for element presence	59
Annex F	(normative) Compatibility of the different revisions of the standard.....	61
Figure 1	– Range configuration	20
Figure 6	– Class diagram CoreAbstractCDCs::CoreAbstractCDCs	22
Figure 7	– Concept of substitution	24
Figure 17	– Class diagram CDCControl::CDCControl-1	34
Figure 18	– Class diagram CDCControl::CDCControl-2.....	35
Figure 34	– Class diagram CDCServiceTracking::CDCServiceTracking	44
Table 1	– Attributes of ConstructedDAs::AnalogueValue	18
Table 2	– Attributes of ConstructedDAs::AnalogueValueCtl.....	18
Table 3	– Attributes of ConstructedDAs::AnalogueValueCtlF	19
Table 4	– Attributes of ConstructedDAs::AnalogueValueCtlInt.....	19
Table 6	– Attributes of ConstructedDAs::RangeConfig	20
Table 14	– Attributes of BasePrimitiveCDC	23
Table 15	– Attributes of BaseComposedCDC	23
Table 16	– Attributes of SubstitutionCDC	24
Table 27	– Attributes of ORS	27
Table 87	– Attributes of VSD.....	43
Table 116	– Functional constraints	50
Table 117	– Conditions for presence of elements within a context	59

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**COMMUNICATION NETWORKS AND
SYSTEMS FOR POWER UTILITY AUTOMATION –**

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

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). 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 organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. 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 systems management and associated information exchange.

This second edition cancels and replaces the first edition, published in 2003.

Compared to the first edition, this second edition:

- defines new common data classes used for new standards defining object models for other domains based on IEC 61850 and for the representation of statistical and historical data,
- provides clarifications and corrections to the first edition of IEC 61850-7-3,

Compared to the second edition, this first revision of the second edition:

- 55 • provides clarifications and corrections to the second edition of IEC 61850-7-3, based
56 on the tissues = { 690, 691, 692, 697, 698, 707, 709, 711, 722, 814, 816, 819, 832,
57 839, 846, 868, 887, 919, 924, 925, 926, 929, 953, 954, 962, 968, 996, 1078, 1079,
58 1122, 1127, 1184, 1187, 1189, 1220, 1233, 1240, 1242, 1247, 1253, 1265, 1270,
59 1311, 1372, 1387, 1388, 1403, 1430, 1438 };
- 60 • includes semantic of attributes within tables in clauses 6 and 7 and thus removes the
61 need for explicit semantic definition in clause 8,
- 62 • clause 8 now contains definitions of newly introduced explicit enumerated types (with
63 tables),
- 64 • some subclauses in clause 7 have different numbering because of introduction of
65 some abstract types (that group common attributes for several concrete types),
- 66 • first subclause under any CDC group in clause 7, that contained the tables with
67 applicable services with respect to functional constraints, have been removed; that
68 information is explicitly defined in IEC 61850-7-2 with functional constraints, and
69 temporarily included as Annex B, Functional constraints,
- 70 • content of 6.2.7 and 6.2.8 has been moved to the normative Annex E of IEC 61850-7-
71 2: Clarification on usage of quality.
- 72 • Presence conditions have been redesigned and renamed to support their uniform
73 usage in all of the IEC 61850-7-xxx series as necessary. Below is the table containing
74 the old and the new presence conditions

new	original	Notes
M	M	
O	O	
MOcond(condID)	Various C, C1, ...	In IEC 61850-7-4
MFcond(condID)	Various C, C1, ...	In IEC 61850-7-4
OFcond(condID)	Various C, C1, ...	In IEC 61850-7-4
MFsubst	PICS_SUBST	
AtLeastOne(1)	GC_1	
AtMostOne	GC_1_EXCL	
AllOrNonePerGroup(n)	GC_2_n	
AllOnlyOneGroup(n)	GC_2_XOR_n	
MO(sibling)	GC_CON_attr	
MOIn0	AC_LN0_M	
MFIn0	AC_LN0_EX	
MOrootLD	C1 in CommonLN	
MOInNs	AC_DLD_M	
MOdataNs	AC_DLN_M	
MOcdcNs	AC_DLND_A_M	
MFscaledAV	AC_SCAV	
MFscaledMagV	AC_SCAV	
MFscaledAngV	AC_SCAV	
AllOrNonePerGroup(n).	AC_ST	
O	AC_CO_O	Documentation provided in ControllableCDC class.
	AC_SG_M	Split into explicit subtype, no need for presence condition.
	AC_SG_O	Split into explicit subtype, no need for presence condition.
	AC_SG_C1	Split into explicit subtype, no need for presence condition.
	AC_NS_G_M	Split into explicit subtype, no need for presence condition.

new	original	Notes
	AC_NSG_O	Split into explicit subtype, no need for presence condition.
	AC_NSG_C1	Split into explicit subtype, no need for presence condition.
MOrms	AC_RMS_M	
O	AC_CLC_O	Eliminated presence condition on Vector.ang in favour of documenting the relevant DO (in IEC 61850-7-4).

75

76 Clauses 5 through 8 and their sub-clauses, replacement for Annex A, Annex B and XML
77 enumerations from Annex D are automatically generated from the UML model.

78

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

FDIS	RVD
57/1087/FDIS	57/1095/RVD

80 Full information on the voting for the approval of this standard can be found in the report on
81 voting indicated in the above table.

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

83 A list of all parts in the IEC 61850 series, published under the general title: *Communication networks*
84 *and systems for power utility automation*, can be found on the IEC website.

85 The general title of the series was *Communication networks and systems in substations*. To
86 address the extension of the scope of IEC 61850, it has been changed to *Communication*
87 *networks and systems for power utility automation*.

88 The committee has decided that the contents of this publication will remain unchanged until
89 the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data
90 related to the specific publication. At this date, the publication will be

- 91 • reconfirmed,
- 92 • withdrawn,
- 93 • replaced by a revised edition, or
- 94 • amended.

95

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.

96

97

98

INTRODUCTION

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

105 IEC 61850-7-1 gives an overview of this communication architecture. This part of IEC 61850
106 defines constructed attributed classes and common data classes related to applications in the
107 power system using IEC 61850 modeling concepts like substations, hydro power or distributed
108 energy resources. These common data classes are used in IEC 61850-7-4 to define
109 compatible dataObject classes. The SubDataObjects, DataAttributes or SubAttributes of the
110 instances of dataObject are accessed using services defined in IEC 61850-7-2.

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

114 Some restructuring of the document where done between Ed 2 and Ed 2.1. The following
115 table provides a cross reference.

116

IEC 61850-7-3:2007A		IEC 61850-7-3:2007B	
Chapter number	Name	Chapter number	Name
	FOREWORD		FOREWORD
	INTRODUCTION		INTRODUCTION
1	Scope	1	Scope
2	Normative references	2	Normative references
3	Terms and definitions	3	Terms and definitions
4	Abbreviated terms	4	Abbreviated terms
5	Conditions for attribute inclusion	5	Conditions for element inclusion
6	Constructed attribute classes	6	Constructed attribute classes
6.1	General	6.1	General
6.2	Quality		<i>moved to IEC 61850-7-2</i>
6.3	Analogue value		<i>moved to clause 6.11</i>
			Configuration of analogue value
6.4	Configuration of analogue value	6.2	(ScaledValueConfig)
6.5	Range configuration	6.3	Range configuration (RangeConfig)
			Step position with transient indication
6.6	Step position with transient indication	6.4	(ValWithTrans)
6.7	Pulse configuration	6.5	Pulse configuration (PulseConfig)
6.8	Originator		<i>moved to IEC 61850-7-2</i>
6.9	Unit definition	6.6	Unit definition (Unit)
6.10	Vector definition	6.7	Vector definition (Vector)
6.11	Point definition	6.8	Point definition (Point)
6.12	CtlModels definition		<i>moved to Clause 8</i>
6.13	SboClasses definition		<i>moved to Clause 8</i>
6.14	Cell	6.9	Cell (Cell)
6.15	CalendarTime definition	6.10	Calendar time definition (CalendarTime)
		6.11	Analogue value
		6.11.1	General
		6.11.2	Analogue value (AnalogueValue)
		6.11.3	Analogue value control (AnalogueValueCtl)
		6.11.4	Analogue float value control

IEC 61850-7-3:2007A		IEC 61850-7-3:2007B	
			(AnalogueValueCtlF)
			Analogue integer value control
			(AnalogueValueCtlInt)
7	Common data class specifications	6.11.5	
7.1	General	7	Common data class specifications
7.2	Name spaces	7.1	General
		7.2	Modelling introduction
		7.2.1	General
			<<abstract>> Common attributes for primitive
		7.2.2	CDC (BasePrimitiveCDC)
			<<abstract>> Common attributes for
		7.2.3	composed CDC (BaseComposedCDC)
		7.2.4	<<abstract>> Substitution (SubstitutionCDC)
7.3	Common data class specifications for status information	7.3	Status information
7.3.1	Application of services	7.3.1	General
7.3.2	Single point status (SPS)		<i>moved to Annex B</i>
7.3.3	Double point status (DPS)	7.3.2	Single point status (SPS)
7.3.4	Integer status (INS)	7.3.3	Double point status (DPS)
7.3.5	Enumerated status (ENS)	7.3.4	<<statistics>> Integer status (INS)
7.3.6	Protection activation information (ACT)	7.3.5	<<abstract>> Enumerated status (ENS)
7.3.7	Directional protection activation information (ACD)	7.3.6	Protection activation information (ACT)
7.3.8	Security violation counting (SEC)	7.3.7	Directional protection activation information (ACD)
7.3.9	Binary counter reading (BCR)	7.3.8	Security violation counting (SEC)
7.3.10	Histogram (HST)	7.3.9	<<statistics>> Binary counter reading (BCR)
7.3.11	Visible string status (VSS)	7.3.10	Histogram (HST)
		7.3.11	Visible string status (VSS)
		7.3.12	Object reference status (ORS)
7.4	Common data class specifications for measurand information	7.4	Measurand information
7.4.1	Application of services		<i>moved to Annex B</i>
		7.4.1	General
			<<abstract,statistics>> Common harmonic
			measurand information
		7.4.2	(HarmonicMeasurandCDC)
7.4.2	Measured value (MV)	7.4.3	<<statistics>> Measured value (MV)
			<<statistics>> Complex measured value
7.4.3	Complex measured value (CMV)	7.4.4	(CMV)
7.4.4	Sampled value (SAV)	7.4.5	<<statistics>> Sampled value (SAV)
	Phase to ground/neutral related measured values of a three-phase system (WYE)		<<statistics>> Phase to ground/neutral related measured values of a three-phase system (WYE)
7.4.5		7.4.6	<<statistics>> Phase to phase related measured values of a three-phase system (DEL)
7.4.6	Phase to phase related measured values of a three-phase system (DEL)	7.4.7	(DEL)
7.4.7	Sequence (SEQ)	7.4.8	<<statistics>> Sequence (SEQ)
7.4.8	Harmonic value (HMV)	7.4.9	<<statistics>> Harmonic value (HMV)
			<<statistics>> Harmonic value for WYE
7.4.9	Harmonic value for WYE (HWYE)	7.4.10	(HWYE)
			<<statistics>> Harmonic value for DEL
7.4.10	Harmonic value for DEL (HDEL)	7.4.11	(HDEL)
7.5	Common data class specifications for controls	7.5	Controls
7.5.1	Application of services		<i>moved to Annex B</i>
		7.5.1	General

IEC 61850-7-3:2007A		IEC 61850-7-3:2007B	
			<<abstract>> Controllable testing (ControlTestingCDC)
7.5.2	Controllable single point (SPC)	7.5.2	Controllable single point (SPC)
7.5.3	Controllable double point (DPC)	7.5.4	Controllable double point (DPC)
			<<statistics>> Controllable integer status (INC)
7.5.4	Controllable integer status (INC)	7.5.5	<<abstract>> Controllable enumerated status (ENC)
7.5.5	Controllable enumerated status (ENC)	7.5.6	<<statistics>> Binary controlled step position information (BSC)
7.5.6	Binary controlled step position information (BSC)	7.5.7	<<statistics>> Integer controlled step position information (ISC)
7.5.7	Integer controlled step position information (ISC)	7.5.8	<<statistics>> Controllable analogue process value (APC)
7.5.8	Controllable analogue process value (APC)	7.5.9	<<statistics>> Binary controlled analogue process value (BAC)
7.5.9	Binary controlled analog process value (BAC)	7.5.10	
7.6	Common data class specifications for status settings	7.6	Status settings <i>moved to Annex B</i>
7.6.1	Application of services	7.6.1	General
		7.6.2	Single point setting
7.6.2	Single point setting (SPG)	7.6.3	Integer status setting
7.6.3	Integer status setting (ING)	7.6.4	Enumerated status setting
7.6.4	Enumerated status setting (ENG)	7.6.5	Object reference setting
7.6.5	Object reference setting (ORG)	7.6.6	Time setting
7.6.6	Time setting group (TSG)	7.6.7	Currency setting
7.6.7	Currency setting group (CUG)	7.6.8	Visible string setting
7.6.8	Visible string setting (VSG)		
	Common data class specifications for analogue settings	7.7	Analogue settings <i>moved to Annex B</i>
7.7	Application of services	7.7.1	General
7.7.1		7.7.2	Analogue setting
7.7.2	Analogue setting (ASG)	7.7.3	Setting curve
7.7.3	Setting curve (CURVE)	7.7.4	Curve shape setting
7.7.4	Curve shape setting (CSG)		
	Common data class specifications for description information	7.8	Description information <i>moved to Annex B</i>
7.8	Application of services	7.8.1	General
7.8.1		7.8.2	Device name plate (DPL)
7.8.2	Device name plate (DPL)	7.8.3	Logical node name plate (LPL)
7.8.3	Logical node name plate (LPL)	7.8.4	Curve shape description (CSD)
7.8.4	Curve shape description (CSD)	7.8.5	Visible string description (VSD)
	<i>moved from IEC 61850-7-2</i>	7.9	Service tracking <i>moved to content of tables</i>
8	Data attribute semantic	8	Enumerated data attribute types
Annex A	Value range for units and multiplier	Annex A	Value range for units and multiplier
Annex B	Functional constraints	Annex B	Functional constraints
Annex C	Tracking of configuration revisions	Annex C	Tracking of configuration revisions
Annex D	SCL enumerations	Annex D	SCL enumerations
		Annex E	Conditions for element presence Compatibility of the different revisions of the standard
		Annex F	

COMMUNICATION NETWORKS AND SYSTEMS FOR POWER UTILITY AUTOMATION –

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

1 Scope

Move the entire content of the Clause 1 to subclause 1.1 General.

Add the following sub-clause:

1.2 Namespace name and version

This new section is mandatory for any IEC 61850 namespace (as defined by the part 7-1 of IEC 61850 Edition 2).

The parameters which are identifying this new release of this namespace are:

- Namespace Version: 2007
- Namespace Revision: B
- UML model file which reflects this namespace revision: wg10uml02v18-wg18uml02v11b-wg17uml02v17c-jwg25uml02v04c.eap, UML model version WG10UML02v18
- Namespace release date: 2015-12-05
- Namespace name: "IEC 61850-7-3:2007B"

2 Normative references

No change.

Add:

IEC 60255-151 (2009-08)

3 Terms and definitions

Replace the text with:

3.1 General

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

3.2

<<abstract>> common data class

An abstract common data class is never instantiated. It is used to group common attributes into a semantically meaningful entity and reuse them in a concrete common data class through inheritance.

3.3

<<statistics>> common data class

A statistics common data class is allowed to be used as a type of a data object within the derived statistics logical node instance (as well as the non-derived statistics logical node). A common data class not designated as statistics is forbidden for use in the context of a derived statistics logical node.

3.4

<<deprecated>> element

An element marked as deprecated is still maintained in this edition of the standard, for backwards compatibility purpose, but is intended to be phased out in the future. A deprecated element by definition indicates what should be used instead.

4 Abbreviated terms

Add the following terms:

act	actual
add	additional
addr	address
altitude	altitude
ang	angle
BL	blocking
blk	block
c	sequence component
C	config
cal	calender
cat	categorie
CB	control block
cell	cell
CF	configuration
charac	characteristic
classes	classes
cmd	command
cnt	counter
config	config
crv	curve
ctl	control
cur	currency
cVal	complex value
cyc	cycle
d	description
data	data
day	day
db	dead band
DC	description
dir	direction
dur	duration

IEC CDV 61850-7-3:2010
AMD1:2016 © IEC 2016

– 15 –

ena	enable
end	end
ePS	electrical power system
eval	evaluate
EX	extended
f	float
factor	factor
fr	frozen
frequency	frequency
general	general
h	high
har	harmonic
hh	high high
hr	hour
hst	histogram
hv	harmonic value
hw	hardware
i	integer
id	identifier
ident	identifier
ind	indication
info	information
inst	instantaneous
int	internal
l	low
latitude	latitude
ld	logical device
lim	limit
off	off
ll	low low
ln	logical node
location	location
longitude	longitude
mag	magnitude
max	maximum
min	minimum
mn	minute
model	model
month	month
mr	master
multiplier	multiplier
mx	measured
MX	measurands (analogue values)
name	name
net	net

neut	neutral
ns	name space
num	number
occ	occurrence
offset	offset
ok	ok
on	on
op	operate
oper	operate
or	origin
OR	oper received
owner	owner
param	parameter
par	parameter
pd	period
per	period
persistent	persistent
phs	phase
phsA	phase A
phsB	phase B
phsC	phase C
pls	pulse
point	point
pos	position
prime	primary
pts	points
puls	puls
pulse	pulse
purpose	purpose
q	quality
qty	quantity
qual	qualifier
range	range
rate	rate
rcvd	received
ref	reference
res	residual
rev	revision
rms	rms
rs	reset
sbo	select before operate
scale	scale
SE	setting group editable
second	second
seld	selected

IEC CDV 61850-7-3:2010
AMD1:2016 © IEC 2016

– 17 –

ser	serial
seq	sequence
set	set
sev	severity
SG	setting group
SI	System international
size	size
smp	sample
SR	service response
src	source
st	state
ST	status information
step	step
str	start
start	start
sub	substituted
SP	setting
SV	substitution
sVC	scale value config
sw	software
t	time
T	type
timeout	Timeout
tissue	Technical Issue – see IEC 61850-1
tm	time
to	to
tr	transient
trans	transient
tst	test
type	type
u	unicode
unit	unit
units	units
val	value
vendor	vendor
w	with
x	x coordinate
y	y coordinate
week	week
z	z coordinate
zero	zero

171

172

173 **5 Conditions for attribute inclusion**

174 *Replace the text with:*

From this edition on, presence conditions are normatively defined in IEC 61850-7-2. For reader's convenience, they are also available in Annex E.

6 Constructed attribute classes

NOTE: due to the revision the sub chapter numbers may have changed within this chapter.

6.1 General

No change.

6.2 Quality

Move this chapter to IEC 61850-7-2.

6.3 Analogue value

Replace text with:

Analogue values may be represented as a basic type integer (attribute *i*) or as floating point (attribute *f*). At least one of the attributes shall be used. If both *i* and *f* exist, the application in the server shall insure that both values remain consistent. When the analogue values represent measured process values, they shall be the primary values.

NOTE: Except for the usage in the CDC SAV, it is recommended to support the representation as a floating point (attribute *f*) only since the representation as an integer (attribute *i*) may be deprecated in the future.

Table 1 shows all attributes of AnalogueValue.

Table 1 – Attributes of ConstructedDAs::AnalogueValue

AnalogueValue			
Attribute name	Attribute type	(Value/Value range) Description	M/O/C
i	INT32	Integer representation of the measured value. The formula to convert between 'i' and the process value (pVal) shall be: $pVal = ((i * ScaledValueConfig.scaleFactor) + ScaledValueConfig.offset)$ in ['Unit.SIUnit']	AtLeastOne(1)
f	FLOAT32	Floating point representation of the measured value. The formula to convert between 'f' and the process value (pVal) shall be: $pVal = f * 10^{exp('Unit.multiplier')}$ in ['Unit.SIUnit']	AtLeastOne(1)

6.4 Analogue value control (AnalogueValueCtl)

Add this new chapter

Type shall be used for control value service parameter only. See AnalogueValue; the only difference is the presence condition for attributes (either 'i' or 'f' present).

Table 2 shows all attributes of AnalogueValueCtl.

Table 2 – Attributes of ConstructedDAs::AnalogueValueCtl

AnalogueValueCtl			
------------------	--	--	--

Attribute name	Attribute type	(Value/Value range) Description	M/O/C
i	INT32	Integer representation of the measured value. See 'AnalogueValue.i'.	AllOnlyOneGroup(1)
f	FLOAT32	Floating point representation of the measured value. See 'AnalogueValue.f'.	AllOnlyOneGroup(2)

205

206 **6.5 Analogue float value control (AnalogueValueCtlF)**207 *Add this new chapter*

208 Type shall be used for tracking of float control value service parameter only. See
209 AnalogueValue.

210 Table 3 shows all attributes of AnalogueValueCtlF.

211 **Table 3 – Attributes of ConstructedDAs::AnalogueValueCtlF**

AnalogueValueCtlF			
Attribute name	Attribute type	(Value/Value range) Description	M/O/C
f	FLOAT32	Floating point representation of the measured value. See 'AnalogueValue.f'.	M

212

213 **6.6 Analogue integer value control (AnalogueValueCtlInt)**214 *Add this new chapter*

215 Type shall be used for tracking of integer control value service parameter only. See
216 AnalogueValue.

217 Table 4 shows all attributes of AnalogueValueCtlInt.

218 **Table 4 – Attributes of ConstructedDAs::AnalogueValueCtlInt**

AnalogueValueCtlInt			
Attribute name	Attribute type	(Value/Value range) Description	M/O/C
i	INT32	Integer representation of the measured value. See 'AnalogueValue.i'.	M

219

220 **6.7 Configuration of analogue value**221 *No change.*

222

223 **6.8 Range configuration**224 *Replace chapter with*

225 Type shall be used to configure the limits that define the range of a measured value.

226 Figure 1 illustrates relationships between range, range configuration and quality of measured
227 process value.