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DIN EN 62056-6-1:2017-07**Entwurf**

**Datenkommunikation der elektrischen Energiemessung –
DLMS/COSEM –
Teil 6-1: COSEM Object Identification System (OBIS)
(IEC 62056-6-1:2017);
Englische Fassung EN 62056-6-1:2017**

Electricity metering data exchange –
The DLMS/COSEM suite –
Part 6-1: Object Identification System (OBIS)
(IEC 62056-6-1:2017);
English version EN 62056-6-1:2017

Échange des données de comptage de l'électricité –
La suite DLMS/COSEM –
Partie 6-1: Système d'identification des objets (OBIS)
(IEC 62056-6-1:2017);
Version anglaise EN 62056-6-1:2017

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Anwendungsbeginn

Anwendungsbeginn dieser Norm ist

Nationales Vorwort

Für dieses Dokument ist das nationale Arbeitsgremium K 461 „Messeinrichtungen und -systeme für Elektrizität“ der DKE Deutsche Kommission Elektrotechnik Elektronik Informationstechnik in DIN und VDE (www.dke.de) zuständig.

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Da sich die Benutzer des vorliegenden Normentwurfs der englischen Sprache als Fachsprache bedienen, wird die Englische Fassung der EN 62056-6-1 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 die meisten 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.

Änderungen

Gegenüber DIN EN 62056-6-1:2017-07 wurden folgende Änderungen vorgenommen:

- a) Die wesentlichen Änderungen sind im Anhang B (informativ) beschrieben.

Nationaler Anhang NA (informativ)

Auszugsweise Übersetzung^{N1}

1 Anwendungsbereich

Dieser Teil der IEC 62056 legt die Gesamtstruktur des Object Identification System (OBIS) und die Zuweisung aller in Messeinrichtungen üblicherweise verwendeten Datenelemente zu deren Identifikationscodes fest.

OBIS stellt eine eindeutige Identifikationsnummer für alle Daten in der Messeinrichtung bereit; dazu gehören nicht nur Messwerte, sondern auch abstrakte Werte für die Konfigurierung oder die Beschaffung von Informationen über das Verhalten der Messeinrichtung. Die in dieser Norm definierten ID-Codes werden verwendet für die Identifikation von:

- logischen Namen der verschiedenen Instanzen der Schnittstellenklassen oder Objekte, wie in IEC 62056-6-2 festgelegt;
- über Fernmeldeleitungen übertragenen Daten;
- in der Messeinrichtung angezeigten Daten, siehe Abschnitt A.2.

Diese Norm gilt für alle Arten von Messeinrichtungen wie zum Beispiel vollintegrierte Messeinrichtungen, modulare Messeinrichtungen, Tarifzählerzusatzgeräte, Datenkonzentratoren usw.

Es wird das Konzept von Medium und Kanal eingeführt, um auch Messeinrichtungen, die andere Energiearten als Elektrizität messen, kombinierte Messeinrichtungen, die mehr als eine Art von Energie messen, und Messeinrichtungen mit mehreren physikalischen Messkanälen abzudecken. So können aus unterschiedlichen Quellen stammende Messdaten identifiziert werden. Diese Norm enthält zwar eine vollständige Festlegung der Struktur des Identifikationssystems für andere Medien, die Zuweisung von Datenelementen, die zu anderer als elektrischer Energie gehören, zu ihren ID-Codes muss jedoch separat abgeschlossen werden.

ANMERKUNG EN 13757-1:2014 legt Bezeichner für Messtechnik fest, die nicht der Elektrizitätsmessung dient: Heizkostenverteiler, thermische Energie, Gas, Kaltwasser und Warmwasser.

3 Begriffe und Abkürzungen

Für die Anwendung dieses Dokuments gelten die Begriffe nach IEC/TR 62051:1999 und IEC/TR 62051-1:2004 und die folgenden Begriffe:

COSEM	Companion Specification for Energy Metering (Begleitspezifikation für die Energiemessung)
COSEM-Objekt	Eine Instanz einer COSEM-Schnittstellenklasse
DLMS	Device Language Message Specification (Spezifikation für Gerätesprachennachrichten)
DLMS UA	DLMS User Association (DLMS-Anwendervereinigung)
GSM	Global System for Mobile Communications (globales System für mobile Kommunikation)
IC	Interface Class (Schnittstellenklasse)
IEC	International Electrotechnical Commission (Internationale Elektrotechnische Kommission)

^{N1} Nationale Fußnote: Die Nummerierung der IEC 62056-6-1:2017-08 wurde beibehalten.

ISO	International Organization for Standardization (Internationale Organisation für Normung)
OBIS	OBject Identification System (Objektidentifikationssystem)
VZ	Vorwertzähler

English Version

Electricity metering data exchange - The DLMS/COSEM suite -
Part 6-1: Object Identification System (OBIS)
(IEC 62056-6-1:2017)

Échange des données de comptage de l'électricité - La
suite DLMS/COSEM - Partie 6-1: Système d'identification
des objets (OBIS)
(IEC 62056-6-1:2017)

Datenkommunikation der elektrischen Energiemessung -
DLMS/COSEM - Teil 6-1: COSEM Object Identification
System (OBIS)
(IEC 62056-6-1:2017)

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 13/1745/FDIS, future edition 3 of IEC 62056-6-1, prepared by IEC/TC 13 "Electrical energy measurement and control" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62056-6-1:2017.

The following dates are fixed:

- latest date by which the document has to be (dop) 2018-06-13
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publication of an identical national
standard or by endorsement
- latest date by which the national (dow) 2020-09-13
standards conflicting with the
document have to be withdrawn

This document supersedes EN 62056-6-1:2016.

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

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association.

Endorsement notice

The text of the International Standard IEC 62056-6-1:2017 was approved by CENELEC as a European Standard without any modification.

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INTRODUCTION

This third edition of IEC 62056-6-1 has been prepared by IEC TC13 WG14 with a significant contribution of the DLMS User Association, its D-type liaison partner.

This edition is in line with the DLMS UA Blue Book Edition 12.2. This edition specifies new OBIS codes related to new applications and includes some editorial improvements.

Data identification

The competitive electricity market requires an ever-increasing amount of timely information concerning the usage of electrical energy. Recent technology developments enable to build intelligent static metering equipment, which is capable of capturing, processing and communicating this information to all parties involved.

To facilitate the analysis of metering information, for the purposes of billing, load, customer and contract management, it is necessary to uniquely identify data items, whether collected manually or automatically, via local or remote data exchange, in a manufacturer-independent way. The definition of identification codes to achieve this – the OBIS codes – is based on DIN 43863-3:1997, *Electricity meters – Part 3: Tariff metering device as additional equipment for electricity meters – EDIS – Energy Data Identification System*.

ELECTRICITY METERING DATA EXCHANGE – THE DLMS/COSEM SUITE –

Part 6-1: Object Identification System (OBIS)

1 Scope

This part of IEC 62056 specifies the overall structure of the OBject Identification System (OBIS) and the mapping of all commonly used data items in metering equipment to their identification codes.

OBIS provides a unique identifier for all data within the metering equipment, including not only measurement values, but also abstract values used for configuration or obtaining information about the behaviour of the metering equipment. The ID codes defined in this document are used for the identification of:

- logical names of the various instances of the ICs, or objects, as defined in IEC 62056-6-2;
- data transmitted through communication lines;
- data displayed on the metering equipment, see Clause A.2.

This document applies to all types of metering equipment, such as fully integrated meters, modular meters, tariff attachments, data concentrators, etc.

To cover metering equipment measuring energy types other than electricity, combined metering equipment measuring more than one type of energy or metering equipment with several physical measurement channels, the concepts of medium and channels are introduced. This allows meter data originating from different sources to be identified. While this document fully defines the structure of the identification system for other media, the mapping of non-electrical energy related data items to ID codes is completed separately.

NOTE EN 13757-1:2014 defines identifiers for metering equipment other than electricity: heat cost allocators, thermal energy, gas, cold water and hot water.

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 TR 61000-2-8:2002, *Electromagnetic compatibility (EMC) – Part 2-8: Environment – Voltage dips and short interruptions on public electric power supply systems with statistical measurement results*

IEC TR 62051:1999, *Electricity metering – Glossary of terms*

IEC TR 62051-1:2004, *Electricity metering – Data exchange for meter reading, tariff and load control – Glossary of terms – Part 1: Terms related to data exchange with metering equipment using DLMS/COSEM*

IEC 62053-23:2003, *Electricity metering equipment (a.c.) – Particular requirements – Part 23: Static meters for reactive energy (classes 2 and 3)*

IEC 62056-21:2002, *Electricity metering – Data exchange for meter reading, tariff and load control – Part 21: Direct local data exchange*

IEC 62056-6-2:2017, *Electricity metering data exchange – The DLMS/COSEM suite – Part 6-2: COSEM interface classes.*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC TR 62051:1999 and IEC TR 62051-1:2004, and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.2 Abbreviated terms

COSEM	Companion Specification for Energy Metering
COSEM object	An instance of a COSEM interface class
DLMS	Device Language Message Specification
DLMS UA	DLMS User Association
GSM	Global System for Mobile Communications
IC	Interface Class
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
OBIS	OBject Identification System
VZ	Billing period counter

4 OBIS code structure

4.1 Value groups and their use

OBIS codes identify data items used in energy metering equipment, in a hierarchical structure using six value groups A to F, see Table 1.

Table 1 – OBIS code structure and use of value groups

Value group	Use of the value group
A	Identifies the media (energy type) to which the metering is related. Non-media related information is handled as abstract data.
B	Generally, identifies the measurement channel number, i.e. the number of the input of a metering equipment having several inputs for the measurement of energy of the same or different types (for example in data concentrators, registration units). Data from different sources can thus be identified. It may also identify the communication channel, and in some cases it may identify other elements. The definitions for this value group are independent from the value group A.
C	Identifies abstract or physical data items related to the information source concerned, for example current, voltage, power, volume, temperature. The definitions depend on the value in the value group A. Further processing, classification and storage methods are defined by value groups D, E and F. For abstract data, value groups D to F provide further classification of data identified by value groups A to C.
D	Identifies types, or the result of the processing of physical quantities identified by values in value groups A and C, according to various specific algorithms. The algorithms can deliver energy and demand quantities as well as other physical quantities.
E	Identifies further processing or classification of quantities identified by values in value groups A to D.
F	Identifies historical values of data, identified by values in value groups A to E, according to different billing periods. Where this is not relevant, this value group can be used for further classification.

4.2 Manufacturer specific codes

In value groups B to F, the following ranges are available for manufacturer-specific purposes:

- group B: 128...199;
- group C: 128...199, 240;
- group D: 128...254;
- group E: 128...254;
- group F: 128...254.

If any of these value groups contain a value in the manufacturer specific range, then the whole OBIS code shall be considered as manufacturer specific, and the value of the other groups does not necessarily carry a meaning defined in this document or in IEC 62056-6-2.

In addition, manufacturer specific ranges are defined in Table 8 with A = 0, C = 96 and in Table 20 with A = 1, C = 96.

4.3 Reserved ranges

By default, all codes not allocated are reserved. ¹

4.4 Summary of rules for manufacturer, utility, consortia and country specific codes

Table 2 summarizes the rules for manufacturer specific codes specified in 4.2, utility specific codes specified in 5.2, consortia specific codes specified in 5.4.2 and country specific codes specified in 5.4.3.

¹ Administered by the DLMS User Association (see Foreword).

Table 2 – Rules for manufacturer, utility, consortia and country specific codes

Code type	Value group					
	A	B	C	D	E	F
Manufacturer specific, NOTE 1	0, 1, 4...9, F	128...199	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>
		<i>b</i>	128... 199, 240	<i>d</i>	<i>e</i>	<i>f</i>
		<i>b</i>	<i>c</i>	128...254	<i>e</i>	<i>f</i>
		<i>b</i>	<i>c</i>	<i>d</i>	128...254	<i>f</i>
		<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	128...254
Manufacturer specific abstract, NOTE 2	0	0...64	96	50...99	0...255	0...255
Manufacturer specific, media related general purpose, NOTE 2	1, 4...9, F	0...64	96	50...99	0...255	0...255
Utility specific, NOTE 3	0, 1, 4...9, F	65...127	0...255	0...255	0...255	0...255
Consortia specific, NOTE 4	0, 1, 4...9, F	0...64	93	See Table 6.		
Country specific, NOTE 5		0...64	94	See Table 7.		

NOTE 1 “b”, “c”, “d”, “e”, “f” means any value in the relevant value group.

NOTE 2 The range D = 50...99 is available for identifying objects, which are not represented by another defined code, but need representation on the display as well. If this is not required, the range D = 128...254 should be used.

NOTE 3 If the value in value group B is 65...127, the whole OBIS code should be considered as utility specific and the value of other groups does not necessarily carry a meaning defined neither in this document nor in IEC 62056-6-2.

NOTE 4 The usage of value group E and F are defined in consortia specific documents.

NOTE 5 The usage of value group E and F are defined in country specific documents.

Objects for which this document defines standard identifiers shall not be re-identified by manufacturer, utility, consortia or country specific identifiers.

On the other hand, an object previously identified by a manufacturer-, utility-, consortia- or country-specific identifier may receive a standard identifier in the future, if its use is of common interest for the users of this document.

4.5 Standard object codes

Standard object codes are meaningful combinations of defined values of the six value groups.

Notation: In the following tables, in the various value groups, “b”, “c”, “d”, “e”, “f” signifies any value in the respective value group. If only one object is instantiated, the value shall be 0. If a value group is shaded, then this value group is not used.

NOTE The DLMS UA maintains a list of standard COSEM object definitions at www.dlms.com. The validity of the combination of OBIS codes and class_id-s as well as the data types of the attributes are tested during conformance testing.

5 Value group definitions – overview

5.1 Value group A

The range for value group A is 0 to 15; see Table 3.

Table 3 – Value group A codes

Value group A	
0	Abstract objects
1	Electricity related objects
...	
4	Heat cost allocator related objects
5, 6	Thermal energy related objects
7	Gas related objects
8	Cold water related objects
9	Hot water related objects
...	
15	Other media
All other	Reserved

The following subclauses contain value group definitions B to F common for all values of value group A.

5.2 Value group B

The range for value group B is 0 to 255; see Table 4.

Table 4 – Value group B codes

Value group B	
0	No channel specified
1...64	Channel 1..64
65...127	Utility specific codes
128...199	Manufacturer specific codes
200...255	Reserved

If channel information is not essential, the value 0 shall be assigned.

The range 65...127 is available for utility specific use. If the value of value group B is in this range, the whole OBIS code shall be considered as utility specific and the value of other groups does not necessarily carry a meaning defined neither in this document nor in IEC 62056-6-2.