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Entwurf**Datenkommunikation der elektrischen Energiemessung –
DLMS/COSEM –****Teil 6-1: COSEM Objekt Identification System (OBIS)
(IEC 13/1465/CDV:2010);****Englische Fassung FprEN 62056-6-1:2010**

Electricity metering data exchange –

The DLMS/COSEM suite –

Part 6-1: COSEM Object Identification System (OBIS) (IEC 13/1465/CDV:2010);

English version FprEN 62056-6-1:2010

Anwendungswarnvermerk

Dieser Norm-Entwurf mit Erscheinungsdatum 2011-10-10 wird der Öffentlichkeit zur Prüfung und Stellungnahme vorgelegt.

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

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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 42 Seiten

DKE Deutsche Kommission Elektrotechnik Elektronik Informationstechnik im DIN und VDE

Die Englische Fassung des europäischen Dokuments FprEN 62056-6-1:2010 „Datenkommunikation der elektrischen Energiemessung – DLMS/COSEM – Teil 6-1: COSEM Objekt Identification System (OBIS)“ (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 13/1465/CDV:2010 „Electricity metering data exchange – The DLMS/COSEM suite – Part 6-1: COSEM Object Identification System (OBIS)“ unverändert in den Entwurf FprEN 62056-6-1:2010 übernommen worden.

Das internationale Dokument wurde vom TC 13 „Equipment for electrical energy measurement and load control“ der Internationalen Elektrotechnischen Kommission (IEC) erarbeitet.

Das DKE/K 461 hat auf seiner Sitzung am 2011-01-12 festgestellt, dass die Bedingungen des DIN-Präsidialbeschlusses 1/2004 für den vorliegenden Norm-Entwurf erfüllt sind, den vorliegenden Norm-Entwurf in englischer Sprache zu veröffentlichen. Auch die mit diesem Norm-Entwurf beabsichtigte Norm soll in englischer Sprache veröffentlicht werden. Sie steht nicht in unmittelbarem Zusammenhang mit Rechtsvorschriften und ist nicht als Sicherheitsnorm anzusehen. Es kann davon ausgegangen werden, dass die Anwender über hinreichende englische Sprachkenntnisse verfügen. Für viele der verwendeten Benennungen existieren keine gebräuchlichen deutschen Benennungen, da sich die deutschen Anwender auf dem Gebiet der „Datenkommunikation der elektrischen Energiemessung“ in der Regel ebenfalls der englischen Benennungen bedienen.

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 diesen Norm-Entwurf ist das nationale Arbeitsgremium K 461 „Elektrizitätszähler“ der DKE Deutsche Kommission Elektrotechnik Elektronik Informationstechnik im DIN und VDE (www.dke.de) zuständig.

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

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

Der Zusammenhang der zitierten Normen mit den entsprechenden Deutschen Normen 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.

Änderungen

Gegenüber DIN EN 62056-6-1:2007-08 wurden folgende Änderungen vorgenommen:

- a) Diese dritte Ausgabe ersetzt die zweite Ausgabe, die 2006 veröffentlicht wurde. Sie ist eine technische Überarbeitung.
- b) Der Titel der überarbeiteten und neuen Teile der Reihe IEC 62056 wurde geändert.
- c) Die Benummerung wurde geändert von IEC 62056-XY in IEC 62056-X-Y. IEC 6256-6-1 wird z. B. IEC 62056-6-1.
- d) Der Aufbau des Schriftstücks folgt enger der Struktur der OBIS-Codes.
- e) Der Text der Einleitung wurde geändert.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRICITY METERING DATA EXCHANGE – THE DLMS/COSEM SUITE
– Part 6-1: COSEM Object Identification System (OBIS)**

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.
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The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this International Standard may involve the use of a maintenance service concerning the stack of protocols on which the present standard IEC 62056-6-1 is based.

The IEC takes no position concerning the evidence, validity and scope of this maintenance service.

The provider of the maintenance service has assured the IEC that he is willing to provide services under reasonable and non-discriminatory terms and conditions for applicants throughout the world. In this respect, the statement of the provider of the maintenance service is registered with the IEC. Information may be obtained from:

DLMS¹ User Association
Geneva/Switzerland
www.dlms.ch

International Standard IEC 62056-6-1 has been prepared by IEC technical committee 13: Electrical energy measurement, tariff- and load control.

¹ Device Language Message Specification.

This third edition cancels and replaces the second edition published in 2006. It constitutes a technical revision.

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

- The title of the revised and new parts of the IEC 62056 suite has changed from “ELECTRICITY METERING – DATA EXCHANGE FOR METER READING, TARIFF AND LOAD CONTROL” to “ELECTRICITY METERING DATA EXCHANGE – THE DLMS/COSEM SUITE”;
- The numbering scheme has changed from IEC 62056-XY to IEC 62056-X-Y. For example IEC 62056-61 becomes IEC 62056-6-1;
- The structure of the document more closely follows the structure of the OBIS codes;
- The text of the Introduction has been amended;
- In 4.3 Value group B: the text has been modified, to allow for using value group B to identify other elements than the measurement channel;
- In 4.11 Standard object codes has been added;
- Clause 5 includes now the value group definitions B to F common for all media. All Electricity related definitions have been moved to clause 7;
- new 5.3.1, General has been added;
- new 5.4.4 Identification of abstract objects has been added;
- new 5.6.2 Identification of billing periods has been added;
- in 6.1, Table 7 – OBIS codes for abstract objects, general service entries new OBIS code have been added:
 - Billing period entries may be also abstract objects (A = 0) now;
 - Date of last firmware activation;
 - Disconnect control state;
 - Battery initial capacity;
 - Battery installation date and time;
 - Battery estimated remaining use time;
 - Aux. supply use time counter;
 - Aux. voltage (measured);
 - Number of power failures in any phase;
 - Ambient pressure;
 - Relative humidity;
 - Event code;
 - GSM field strength;
 - Telephone number / Communication address of the physical device;
 - Consumer messages;
 - Currently active tariff;
 - Event counter;
- In 6.2, Table 8 – OBIS codes for error registers, alarm registers and alarm filters – Abstract new OBIS code have been added:
 - Alarm register objects;
 - Alarm filter objects.
- In 7.1, Table 12 – Value group C codes – Electricity C = 90 Σ Li current has been added;

- In 7.2.1, Table 13 – Value group D codes – Electricity the following new codes have been added:
 - Time threshold for under limit;
 - Time threshold for over limit;
 - Time threshold for missing magnitude;
 - Contracted value.
- In 7.5.1, Table 19 – OBIS codes for general purpose objects – Electricity new OBIS codes have been added:
 - Active firmware signature;
 - Reference voltage for aux. power supply;
 - Clock time shift limit (default value: s);
 - Billing period reset lockout time First billing period scheme if there are more than one);
 - Time expired since last end of billing period (Second billing period scheme);
 - Time of last reset (Second billing period scheme);
 - Date of last reset (Second billing period scheme);
 - Billing period reset lockout time (Second billing period scheme);

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

FDIS	Report on voting

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.

The committee has decided that the contents of this publication will remain unchanged until the stability date² indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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

² The National Committees are requested to note that for this publication the stability date is

INTRODUCTION

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: COSEM Object Identification System (OBIS)

1 Scope

The Object Identification System (OBIS) defines the identification codes (ID-codes) for commonly used data items in metering equipment. This part of IEC 62056 specifies the overall structure of the identification system and the mapping of all data items 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 standard are used for the identification of:

- logical names of the various instances of the ICs, or objects, as defined in Future IEC 62056-6-2;
- data transmitted through communication lines, see A.1; _____
- data displayed on the metering equipment, see A.2. _____

This standard 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 concept of medium and channels are introduced. This allows meter data originating from different sources to be identified. While this standard fully defines the structure of the identification system for other media, the mapping of non-electrical energy related data items to ID codes needs to be completed separately.

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

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 60050-300:2001, *International Electrotechnical Vocabulary (IEV) – Electrical and electronic measurements and measuring instruments – Part 311: General terms relating to measurements – Part 312: General terms relating to electrical measurements – Part 313: Types of electrical measuring instrument – Part 314: Specific terms according to the type of instrument*

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 62051 Ed. 1.0:1999, *Electricity metering – Glossary of terms*

IEC 62051-1 Ed. 1.0:2004, *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 Ed. 1.0:2003, *Electricity metering equipment (a.c.) – Particular requirements – Part 23: Static meters for reactive energy (classes 2 and 3)*

IEC 62056-21 Ed 1.0:2002, *Electricity metering – Data exchange for meter reading, tariff and load control – Part 21: Direct local data exchange*

Future IEC 62056-6-2 Ed. 3.0:20XX, *Electricity metering data exchange – The DLMS/COSEM suite – Part 62: Interface classes*

3 Terms, Definitions and Abbreviations

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

4 OBIS code structure

4.1 General

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



Figure 1 – OBIS code structure

4.2 Value group A

Value group A is used to identify the media (energy type) to which the metering is related. Non-media related information is handled as abstract data.

4.3 Value group B

Value group B is generally used to identify 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.

Value group B may also be used to identify the communication channel, and in some cases for other purposes.

The definitions for this value group are independent from the value group A.

4.4 Value group C

Value group C is used to identify the 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.

4.5 Value group D

Value group D is used to identify 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.

4.6 Value group E

Value group E is used to identify further processing or classification of quantities identified by values in value groups A to D.

4.7 Value group F

Value group F is used to identify historical 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.

4.8 Manufacturer specific codes

In value groups B, C, D, E and 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 standard or in Future IEC 62056-6-2.

In addition, manufacturer specific ranges are defined in Table 7 with A = 0, C = 96, in Table 19 with A = 1, C = 96.

4.9 Reserved ranges

By default, all codes not allocated are reserved. ³

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

Table 1 summarizes the rules for handling manufacturer specific codes specified in 4.8, utility specific codes specified in 5.2, consortia specific codes specified in 5.4.2 and country specific codes specified in 5.4.3.

³ Administered by the DLMS User Association (see Foreword).