SVENSK STANDARD SS-EN 62056-5-3

| Fastställd | Utgåva | Sida | Ansvarig kommitté |
|---|---|---|---|
| 2014-05-14 | 1 | 1 (1+177) | SEK TK 13 |




# Elmätare – Datakommunikation för avläsning av elmätare och för styrning av tariff och belastning – Del 5-3: Tillämpningsskikt COSEM

*Electricity metering data exchange – The DLMS/COSEM suite – Part 5-3: DLMS/COSEM application layer*

Som svensk standard gäller europastandarden EN 62056-5-3:2014. Den svenska standarden innehåller den officiella engelska språkversionen av EN 62056-5-3:2014.

**Nationellt förord**

Europastandarden EN 62056-5-3:2014

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 62056-5-3, First edition, 2013 - Electricity metering data exchange - The DLMS/COSEM suite - Part 5-3: DLMS/COSEM application layer**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 62056-53, utgåva 2, 2007, gäller ej fr o m 2016-07-10.

Standardern ersätter delvis SS-EN 62056-53, utgåva 2, 2007.

ICS 17.220.00; 35.110.00; 91.140.50

Denna standard är fastställd av SEK Svensk Elstandard,
som också kan lämna upplysningar om **sakinnehållet** i standarden.
Postadress: Box 1284, 164 29 KISTA
Telefon: 08 - 444 14 00.
E-post: sek@elstandard.se. Internet: www.elstandard.se

## *Standarder underlättar utvecklingen och höjer elsäkerheten*

Det finns många fördelar med att ha gemensamma tekniska regler för bl a säkerhet, prestanda, dokumentation, utförande och skötsel av elprodukter, elanläggningar och metoder. Genom att utforma sådana standarder blir säkerhetskraven tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

## *SEK är Sveriges röst i standardiseringsarbetet inom elområdet*

SEK Svensk Elstandard svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

## *Stora delar av arbetet sker internationellt*

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

## *Var med och påverka!*

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

SEK Svensk Elstandard
Box 1284
164 29 Kista
Tel 08-444 14 00
www.elstandard.se

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN 62056-5-3

March 2014

ICS 17.220; 35.110; 91.140.50

Supersedes EN 62056-53:2007 (partially)

English version

# Electricity metering data exchange - The DLMS/COSEM suite - Part 5-3: DLMS/COSEM application layer

(IEC 62056-5-3:2013)

Échange des données de comptage de l'électricité - La suite DLMS/COSEM - Partie 5-3: Couche application DLMS/COSEM (CEI 62056-5-3:2013)

Datenkommunikation der elektrischen Energiemessung - DLMS/COSEM - Teil 5-3: DLMS/COSEM-Anwendungsschicht (IEC 62056-5-3:2013)



CENELEC

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

**CEN-CENELEC Management Centre: Avenue Marnix 17, B - 1000 Brussels**



Ref. No. EN 62056-5-3:2014 E

SEK Svensk Elstandard

## Foreword

The text of document 13/1523/FDIS, future edition 1 of IEC 62056-5-3, prepared by IEC/TC 13 "Electrical energy measurement, tariff- and load control" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62056-5-3:2014.

The following dates are fixed:

| | | |
|---|---|---|
| • latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement | (dop) | 2014-09-07 |
| • latest date by which the national standards conflicting with the document have to be withdrawn | (dow) | 2016-07-10 |

This document supersedes EN 62056-53:2007 (PART).

EN 62056-5-3:2014 includes the following significant technical changes with respect to EN 62056-53:2007:

The significant technical changes with respect to EN 62056-53 are listed in Annex F.

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

## Endorsement notice

The text of the International Standard IEC 62056-5-3:2013 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 61334-4-32:1996 | NOTE | Harmonized as EN 61334-4-32:1996 (not modified). |
| IEC 61334-4-511:2000 | NOTE | Harmonized as EN 61334-4-511:2000 (not modified). |
| IEC 61334-4-512:2001 | NOTE | Harmonized as EN 61334-4-512:2002 (not modified). |
| IEC 61334-5-1:2001 | NOTE | Harmonized as EN 61334-5-1:2001 (not modified). |
| IEC 62056-1-0 [1)] | NOTE | Harmonized as EN 62056-1-0 [1)]. |
| ISO/IEC 7498-1:1994 | NOTE | Harmonized as EN ISO/IEC 7498-1:1995 [2)] (not modified). |

[1)] At draft stage.

[2)] Withdrawn publication.

# Annex ZA
(normative)

## Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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.

| Publication | Year | Title | EN/HD | Year |
|---|---|---|---|---|
| IEC 61334-4-41 | 1996 | Distribution automation using distribution line carrier systems - Part 4: Data communication protocols - Section 41: Application protocols - Distribution line message specification | EN 61334-4-41 | 1996 |
| IEC 61334-6 | 2000 | Distribution automation using distribution line carrier systems - Part 6: A-XDR encoding rule | EN 61334-6 | 2000 |
| IEC/TR 62051 | 1999 | Electricity metering - Glossary of terms | - | - |
| IEC/TR 62051-1 + corr. June | 2004 2005 | 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 62056-6-1 | 2013 | Electricity metering data exchange - The DLMS/COSEM suite - Part 6-1: COSEM Object Identification System (OBIS) | EN 62056-6-1 | 2013 |
| IEC 62056-6-2 | 2013 | Electricity metering data exchange - The DLMS/COSEM suite - Part 6-2: COSEM interface classes | EN 62056-6-2 | 2013 |
| IEC 62056-8-3 | 2013 | Electricity metering data exchange - The DLMS/COSEM suite - Part 8-3: Communication profile for PLC S-FSK neighbourhood networks | EN 62056-8-3 | 2013 |
| ISO/IEC 15953 | 1999 | Information technology - Open systems interconnection - Service definition for the Application service object association control service element | - | - |
| ISO/IEC 15954 | 1999 | Information technology - Open systems interconnection - Connection-mode protocol for the application service object association control service element | - | - |
| ISO/IEC 8824-1 | 2008 | Information technology - Abstract Syntax Notation One (ASN.1): Specification of basic notation | - | - |
| ISO/IEC 8825-1 | 2008 | Information technology - ASN.1 encoding rules: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER) | - | - |

| Publication | Year | Title | EN/HD | Year |
|---|---|---|---|---|
| FIPS PUB 180-1 | 1995 [3)] | Secure hash standard | - | - |
| FIPS PUB 197 | 2001 | Advanced Encryption Standard (AES) | - | - |
| NIST SP 800-38D | 2007 | Recommendation for Block Cipher Modes of Operation: Galois/Counter Mode (GCM) and GMAC | - | - |
| NIST SP 800-57 | 2007 [4)] | Recommendation for key management - Part 1: General | - | - |
| RFC 1321 | 1992 | Internet Engineering Task Force (IETF). The MD5 Message-Digest Algorithm. Edited by R. Rivest (MIT Laboratory for Computer Science and RSA Data Security, Inc.) | - | - |
| RFC 3394 | 2002 | Internet Engineering Task Force (IETF). Advanced Encryption Standard (AES) Key Wrap Algorithm. Edited by J. Schaad (Soaring Hawk Consulting) and R. Housley (RSA Laboratories) | - | - |
| RFC 4106 | 2005 | The Use of Galois/Counter Mode (GCM) in IPsec Encapsulating Security Payload (ESP) | - | - |

[3)] Superseded by FIPS PUB 180-2:2002, which is also superseded by FIPS PUB 180-4:2012.

[4)] Superseded by NIST SP 800-57:2012.

CONTENTS

# ELECTRICITY METERING DATA EXCHANGE – THE DLMS/COSEM SUITE –

## Part 5-3: DLMS/COSEM application layer

## 1 Scope

This part of IEC 62056 specifies the DLMS/COSEM application layer in terms of structure, services and protocols for COSEM clients and servers, and defines how to use the DLMS/COSEM application layer in various communication profiles.

It defines services for establishing and releasing application associations, and data communication services for accessing the methods and attributes of COSEM interface objects, defined in IEC 62056-6-2[2], using either logical name (LN) or short name (SN) referencing.

Annex A (normative) defines how to use the COSEM application layer in various communication profiles. It specifies how various communication profiles can be constructed for exchanging data with metering equipment using the COSEM interface model, and what are the necessary elements to specify in each communication profile. The actual, media-specific communication profiles are specified in separate parts of the IEC 62056 series.

Annex B, Annex C and Annex D (informative) include encoding examples for APDUs.

Annex E (informative) provides an overview of cryptography.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61334-4-41:1996, *Distribution automation using distribution line carrier systems – Part 4: Data communication protocols – Section 41: Application protocols – Distribution line message specification*

IEC 61334-6:2000, *Distribution automation using distribution line carrier systems – Part 6: A-XDR encoding rule*

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*

---

2 To be published simultaneously with this part of IEC 62056.

IEC 62056-6-1:—, *Electricity metering data exchange – The DLMS/COSEM suite – Part 6-1: Object Identification System (OBIS)*[3]

IEC 62056-6-2:—, *Electricity metering data exchange – The DLMS/COSEM suite – Part 6-2: COSEM interface classes*[4]

IEC 62056-8-3:—, *Electricity metering data exchange – The DLMS/COSEM suite – Part 8-3: Communication profile for PLC S-FSK neighbourhood networks*[5]

ISO/IEC 15953:1999, *Information technology – Open Systems Interconnection – Service definition for the Application Service Object Association Control Service Element*

ISO/IEC 15954:1999, *Information technology – Open Systems Interconnection – Connection-mode protocol for the Application Service Object Association Control Service Element*

ISO/IEC 8824-1:2008, *Information technology – Abstract Syntax Notation One (ASN.1): Specification of basic notation*

ISO/IEC 8825-1:2008, *Information technology – ASN.1 encoding rules: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER)*

FIPS PUB 180-1:2002, *Secure hash standard*

FIPS PUB 197:2001, *Advanced Encryption Standard (AES)*

NIST SP 800-38D:2007, *Recommendation for Block Cipher Modes of Operation: Galois/Counter Mode (GCM) and GMAC*

NIST SP 800-57:2006, *Recommendation for Key Management – Part 1: General* (Revised)

RFC 1321:1992, Internet Engineering Task Force (IETF). *The MD5 Message-Digest Algorithm.* Edited by R. Rivest (MIT Laboratory for Computer Science and RSA Data Security, Inc.) April 1992. Available from: http://www.rfc-editor.org/rfc/rfc1321.txt

RFC 3394:2002, Internet Engineering Task Force (IETF). *Advanced Encryption Standard (AES) Key Wrap Algorithm.* Edited by J. Schaad (Soaring Hawk Consulting) and R. Housley (RSA Laboratories) September 2002. Available from: http://www.rfc-editor.org/rfc/rfc3394.txt

RFC 4106:2005, *The Use of Galois/Counter Mode (GCM) in IPsec Encapsulating Security Payload (ESP)*

NOTE See also the Bibliography.

---

3 To be published simultaneously with this part of IEC 62056.

4 To be published simultaneously with this part of IEC 62056.

5 To be published simultaneously with this part of IEC 62056.