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**Electricity metering data exchange – The DLMS/COSEM suite –
Part 4-7: DLMS/COSEM transport layer for IP networks**

**Échange des données de comptage de l'électricité – La suite DLMS/COSEM –
Partie 4-7: Couche transport DLMS/COSEM pour réseaux IP**



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INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 17.220; 35.110; 91.140.50

ISBN 978-2-8322-2609-4

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRICITY METERING DATA EXCHANGE –
THE DLMS/COSEM SUITE –****Part 4-7: DLMS/COSEM transport layer for IP networks**

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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:

DLMS User Association
Zug/Switzerland
www.dlms.com

International Standard IEC 62056-4-7 has been prepared by IEC technical committee 13: Electrical energy measurement and control.

This first edition cancels and replaces IEC 62056-47 published in 2006. This edition constitutes a technical revision.

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

- a) This standard is applicable now both for IP4 and IPv6 networks;
- b) Latest editions of the IEC 62056 suite are referenced.
- c) DLMS/COSEM IANA-registered port numbers added.

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

CDV	Report on voting
13/1570/CDV	13/1595/RVC

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.

A list of all parts in the IEC 62056 series, published under the general title *Electricity metering data exchange – The DLMS/COSEM suite*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date 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.

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INTRODUCTION

This standard specifies the DLMS/COSEM transport layer for IP (IPv4 or IPv6) networks. It shall be read together with IEC 62056-9-7:2013, *Electricity metering data exchange – The DLMS/COSEM suite – Part 9-7: Communication profile for TCP-UDP/IP networks*.

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ELECTRICITY METERING DATA EXCHANGE – THE DLMS/COSEM SUITE –

Part 4-7: DLMS/COSEM transport layer for IP networks

1 Scope

This part of IEC 62056 specifies a connection-less and a connection oriented transport layer (TL) for DLMS/COSEM communication profiles used on IP networks.

These TLs provide OSI-style services to the service user DLMS/COSEM AL. The connection-less TL is based on the Internet Standard User Datagram Protocol (UDP). The connection-oriented TL is based on the Internet Standard Transmission Control Protocol (TCP).

The DLMS/COSEM TL consists of the UDP or TCP transport layer TCP and an additional sublayer, called wrapper.

Annex A shows how the OSI-style TL services can be converted to and from UDP and TCP function calls.

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 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 instruments – Part 314: Specific terms according to the type of instrument*

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 62056-5-3:2013, *Electricity metering data exchange – The DLMS/COSEM suite – Part 5-3: DLMS/COSEM application layer*¹

IEC 62056-6-2:2013, *Electricity metering data exchange – The DLMS/COSEM suite – Part 6-2: COSEM interface classes*²

¹ Edition 2 of IEC 62056-5-3 to be published.

² Edition 2 of IEC 62056-6-2 to be published.

IEC 62056-9-7:2013, *Electricity metering data exchange – the DLMS/COSEM suite – Part 9-7: Communication profile for TCP-UDP/IP networks*

STD 0006, *User Datagram Protocol*. Edited by Jon Postel, August 1980. Available from: <http://www.faqs.org/rfcs/std/std6.html>

STD 0007, *Transmission Control Protocol*. Edited by Jon Postel, September 1981. Available from: <http://www.faqs.org/rfcs/std/std7.html>

NOTE See also Bibliography for other related Internet RFCs.

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-300, IEC TR 62051 and IEC TR 62051-1 apply as well as the following:

3.1.1

application process

an element within a real open system which performs the information processing for a particular application

[SOURCE: ISO/IEC 7498-1: 1994, 4.1.4]

3.1.2

application entity

system-independent application activities that are made available as application services to the application agent, e.g., a set of application service elements that together perform all or part of the communication aspects of an application process

3.2 Abbreviations

APDU	Application Layer Protocol Data Unit
AL	Application Layer
AP	Application Process
AE	Application Entity
COSEM	COmpanion Specification for Energy Metering
DHCP	Dynamic Host Configuration Protocol
DLMS	Device Language Message Sepcification
COSEM_on_IP	The TCP-UDP/IP based COSEM communication profile
FTP	File Transfer Protocol
HTTP	HyperText Transfer Protocol
IANA	Internet Assigned Numbers Authority
IP	Internet Protocol
PDU	Protocol Data Unit
PAR	Positive Acknowledgement with Retransmission
SNMP	Simple Network Management Protocol
TCP	Transmission Control Protocol
TFTP	Trivial File Transfer Protocol
TL	Transport Layer
UDP	User Datagram Protocol