



BSI Standards Publication

Electricity metering data exchange — The DLMS®/COSEM suite

Part 8-12: Communication profile for Low-Power Wide Area Networks (LPWANS)

National foreword

This British Standard is the UK implementation of EN IEC 62056-8-12:2023. It is identical to IEC 62056-8-12:2023.

The UK participation in its preparation was entrusted to Technical Committee PEL/13, Electricity Meters.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Electricity metering data exchange - The DLMS®/COSEM suite -
Part 8-12: Communication profile for Low-Power Wide Area
Networks (LPWANs)
(IEC 62056-8-12:2023)

Échange des données de comptage de l'électricité - La
suite DLMS®/COSEM - Partie 8-12: Profil de
communication pour réseaux étendus à basse
consommation (LPWAN)
(IEC 62056-8-12:2023)

Datenkommunikation der elektrischen Energiemessung -
DLMS®/COSEM - Teil 8-12: Kommunikationsprofil für Low
Power Wide Area Networks (LPWAN)
(IEC 62056-8-12:2023)

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European foreword

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- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2024-08-01
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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 62056-1-0	-	Electricity metering data exchange - The DLMS®/COSEM suite - Part 1-0: Smart metering standardisation framework	EN 62056-1-0	-
IEC/TS 62056-1-1	2016	Electricity metering data exchange - The DLMS®/COSEM suite - Part 1-1: Template for DLMS®/COSEM communication profile standards	-	-
IEC 62056-4-7	2015	Electricity metering data exchange - The DLMS®/COSEM suite - Part 4-7: DLMS®/COSEM transport layer for IP networks	EN 62056-4-7	2016
IEC 62056-5-3	2023	Electricity metering data exchange - The DLMS®/COSEM suite - Part 5-3: DLMS®/COSEM application layer	EN IEC 62056-5-3	2023
IEC 62056-6-1 ED4 — ¹		Electricity metering data exchange - The DLMS®/COSEM suite - Part 6-1: Object Identification System (OBIS)	EN IEC 62056-6-1	— ²
IEC 62056-6-2	2023	Electricity metering data exchange - The DLMS®/COSEM suite - Part 6-2: COSEM interface classes	EN IEC 62056-6-2	2023
IEC 62056-9-7	2013	Electricity metering data exchange - The DLMS®/COSEM suite - Part 9-7: Communication profile for TCP-UDP/IP networks	EN 62056-9-7	2013
IETF RFC 2460	1998	Internet Protocol - Version 6 (IPv6) - Specification	-	-
IETF RFC 8376	-	Low-Power Wide Area Network (LPWAN) - Overview	-	-

¹ Under preparation. Stage at time of publication: 13/1852/CDV.

² Under preparation. Stage at time of publication: prEN IEC 62056-6-1:2021.

EN IEC 62056-8-12:2023 (E)

IETF RFC 8724	-	SCHC - Generic Framework for Static Context Header Compression and Fragmentation	-	-
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRICITY METERING DATA EXCHANGE –
THE DLMS®/COSEM SUITE –****Part 8-12: Communication profile for
Low-Power Wide Area Networks (LPWANs)**

FOREWORD

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IEC 62056-8-12 has been prepared by IEC technical committee TC 13: Electrical energy measurement and control. It is an International Standard.

The text of this International Standard is based on the following documents:

Draft	Report on voting
13/1877/CDV	13/1901/RVC

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

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 document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

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

Part 8-12: Communication profile for Low-Power Wide Area Networks (LPWANs)

1 Scope

This part of IEC 62056 describes the use of DLMS®/COSEM for Low-Power Wide Area Networks (LPWANs). It specifies how the COSEM data model and the DLMS®/COSEM application layer can be used over various LPWAN technologies using an adaptation layer based on IETF RFC 8724, and in particular over LoRaWAN.

This profile is intended to be used with LPWANs as defined in IETF RFC 8724, in particular LoRaWAN. Low-Power Wide Area Networks (LPWANs) are wireless technologies with characteristics such as large coverage areas, low bandwidth, possibly very small packet and application-layer data sizes, and long battery life operation. This document does not provide functionality to manage the lower layers of the LPWANs.

This part of the DLMS®/COSEM suite specifies the communication profile for Low-Power Wide Area Networks (LPWANs).

The DLMS®/COSEM LPWAN communication profiles use connection-less transport layer based on the Internet Standard User Datagram Protocol (UDP) and Internet Protocol (IPv6).

The adaptation layer is based on IETF RFC 8724 which provides both a header compression/decompression mechanism and an optional fragmentation/reassembly mechanism. SCHC compression is based on static context with small context identifier to represent full IPv6/UDP/COSEM wrapper headers. If required, SCHC fragmentation is used to support IPv6 MTU over the LPWAN technologies.

This document follows the rules defined in IEC 62056-5-3:2023, Annex A, and in IEC 62056-1-0, and IEC TS 62056-1-1:2016 for its structure. See also Annex A for examples.

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 62056-1-0, *Electricity metering data exchange – The DLMS®/COSEM suite – Part 1-0 Smart metering standardisation framework*

IEC TS 62056-1-1:2016, *Electricity metering data exchange – The DLMS®/COSEM suite – Part 1-1: Template for DLMS®/COSEM communication profile standards*

IEC 62056-4-7:2015, *Electricity metering data exchange – The DLMS®/COSEM suite – Part 4-7: DLMS®/COSEM transport layer for IP networks*

IEC 62056-5-3:2023, *Electricity metering data exchange – The DLMS®/COSEM suite – Part 5-3: DLMS®/COSEM application layer*