

Communication systems for meters - Part 2: Wired
M-Bus communication

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 13757-2:2018+A1:2023 sisaldab Euroopa standardi EN 13757-2:2018+A1:2023 ingliskeelset teksti. Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas. Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 20.12.2023. Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	This Estonian standard EVS-EN 13757-2:2018+A1:2023 consists of the English text of the European standard EN 13757-2:2018+A1:2023. This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation. Date of Availability of the European standard is 20.12.2023. The standard is available from the Estonian Centre for Standardisation and Accreditation.
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ICS 33.200, 35.100.10, 35.240.99, 91.140.50

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English Version

Communication systems for meters - Part 2: Wired M-Bus communication

Systèmes de communication pour compteurs - Partie 2
: Communication M-Bus filaire

Kommunikationssysteme für Zähler - Teil 2:
Drahtgebundene M-Bus-Kommunikation

This European Standard was approved by CEN on 8 February 2018 and includes Amendment approved by CEN on 22 October 2023.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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

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European foreword

This document (EN 13757-2:2018+A1:2023) has been prepared by Technical Committee CEN/TC 294 “Communication systems for meters”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2024, and conflicting national standards shall be withdrawn at the latest by June 2024.

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

This document supersedes A1 EN 13757-2:2018 A1.

This document includes Amendment 1 approved by CEN on 22 October 2023.

The start and finish of text introduced or altered by amendment is indicated in the text by tags A1 A1.

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

The following significant technical changes have been incorporated in the new edition of this document:

- a) more precise definition of collision state under 4.3.3.8;
- b) modification of application under 5.7.3.4 from “required” to “optional”;
- c) additional explanations for usage of REQ-SKE under 5.7.3.4;
- d) addition of new datagram SND-UD2 under 5.7.3.4;
- e) alignment of Annex D with revised definition of collision state under 4.3.3.8 and
- f) editorial alignments with other parts of this standard, e.g. replacement of \$E5 with ACK.

EN 13757 is currently composed with the following parts:

- *Communication systems for meters — Part 1: Data exchange;*
- *Communication systems for meters — Part 2: Wired M-Bus communication;*
- *Communication systems for meters — Part 3: Application protocols;*
- *Communication systems for meters and remote reading of meters — Part 4: Wireless meter readout (Radio meter reading for operation in SRD bands);*
- *Communication systems for meters — Part 5: Wireless M-Bus relaying;*
- *Communication systems for meters — Part 7: Transport and security services;*
- *CEN/TR 17167, Communication systems for meters — Accompanying TR to EN 13757-2,-3 and -7, Examples and supplementary information.*

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Introduction

This European Standard belongs to the EN 13757 series, which covers communication systems for meters. EN 13757-1 contains generic descriptions and a communication protocol. EN 13757-3 contains detailed description of the application protocols especially the M-Bus Protocol. EN 13757-4 describes wireless communication (often called wireless M-Bus or wM-Bus). EN 13757-5 describes the wireless network used for repeating, relaying and routing for the different modes of EN 13757-4. EN 13757-6 describes a twisted pair local bus for short distance (Lo-Bus). EN 13757-7 describes transport mechanism and security methods for data. The Technical Report CEN/TR 17167 contains informative annexes from EN 13757-2, EN 13757-3 and EN 13757-7.

An overview of communication systems for meters is given in EN 13757-1, which also contains further definitions.

The Physical and Link Layer parameters for baseband communication over twisted pairs have first been specified in EN 1434-3:1997 ("M-Bus") for heat meters. This standard is a compatible and interworking update of a part of EN 1434-3:2015 and includes also other measured media (e.g. water, gas, thermal energy, heat cost allocators), the master side of the communication and newer technical developments. It should be noted that EN 1434-3: 2015 covers also other communication techniques.

It can be used with various application layers especially the application layer of EN 13757-3.

1 Scope

This document is applicable to the physical and link layer parameters of baseband communication over twisted pair (M-Bus) for meter communication systems. It is especially applicable to thermal energy meters, heat cost allocators, water meters and gas meters.

NOTE It is usable also for other meters (like electricity meters) and for sensors and actuators. For generic descriptions concerning communication systems for meters and remote reading of meters see EN 13757-1.

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.

EN 13757-1:2014, *Communication systems for meters - Part 1: Data exchange*

EN 60870-5, (all parts), *Telecontrol equipment and systems (IEC 60870-5 series)*

EN 60870-5-1, *Telecontrol equipment and systems - Part 5: Transmission protocols - Section 1: Transmission frame formats*

EN 60870-5-2:1993, *Telecontrol equipment and systems - Part 5: Transmission protocols - Section 2: Link transmission procedures*

EN 61000-4-4, *Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test*

EN 61000-4-5, *Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test*

3 Terms, definitions $\square_{A1}$ and abbreviations $\square_{A1}$

3.1 $\square_{A1}$ Terms and definitions $\square_{A1}$

For the purposes of this document, the terms and definitions given in EN 13757-1:2014 and the following apply.

$\square_{A1}$ 3.1.1

communication type

frame type as defined in EN 60870-5-2:1993 and identified by the function code

Note 1 to entry: Other parts of EN 13757 also use the term message type as an equivalent. $\square_{A1}$

3.1.2

unit load

one unit load (1 U_L) is the maximum mark state current of 1,5 mA

$\square_{A1}$ 3.1.3

ACK

acknowledge frame coded with E5h according to EN 60870-5-2:1993, 3.2 "Format FT 1.2"