PD CEN/TR 17167:2023



BSI Standards Publication

Communication system for meters — Accompanying TR to EN 13757-2,-3 and -7, Examples and supplementary information

National foreword

This Published Document is the UK implementation of CEN/TR 17167:2023. It supersedes PD CEN/TR 17167:2018, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PEL/894, Remote Meter Reading.

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

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English Version

Communication system for meters - Accompanying TR to EN 13757-2,-3 and -7, Examples and supplementary information

Systèmes de communication pour compteurs - Rapport technique accompagnant les EN 13757-2,-3 et -7 - Exemples et informations supplémentaires

Kommunikationssysteme für Zähler - Begleitender Technischer Bericht zu EN 13757-2, -3 und -7, Beispiele und ergänzende Informationen

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European foreword

This document (CEN/TR 17167:2023) has been prepared by Technical Committee CEN/TC 294 “Communication systems for meters”, the secretariat of which is held by DIN.

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 CEN/TR 17167:2018.

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

CEN/TR 17167:2023 includes the following significant technical changes with respect to CEN/TR 17167:2018:

— update according new CEN rules IR3.

— update FCB usage and adding new Figure A.1 to be in line with EN 13757-2 (202x)

— add new M-Bus data container for M-Bus upper layers (77h)

— Update datagram example in (sub-)clauses F.4, F.5.4 and F.7.2.

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.

Introduction

This document belongs to a series of parts of EN 13757, which covers communication systems for meters and remote reading of meters. EN 13757-1 contains generic descriptions and a communication protocol. EN 13757-2 contains a physical and a link layer for twisted pair based Meter-Bus (M-Bus). 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 13757–7 describes transport mechanism and security methods for data.

These upper M-Bus protocol layers can be used with various physical layers and with link layers and network layers, which support the transmission of variable length binary transparent messages. Frequently, the physical and link layers of EN 13757-2 (twisted pair) and EN 13757-4 (wireless) as well as EN 13757-5 (wireless with routing function) or the alternatives described in EN 13757-1 are used. These upper M-Bus protocol layers have been optimized for minimum battery consumption of meters, especially for the case of wireless communication to ensure long battery lifetimes of the meters. Secondly, it is optimized for minimum message length to minimize the wireless channel occupancy and hence the collision rate. Thirdly, it is optimized for minimum requirements towards the meter processor regarding requirements of RAM size, code length and computational power.

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

This document concentrates on the meter communication. The meter communicates with one (or occasionally several) fixed or mobile communication partners which again might be part of a private or public network. These further communication systems might use the same or other application layer protocols, security, privacy, authentication, and management methods.

To facilitate common communication systems for CEN-meters (e.g. gas, water, thermal energy meters and heat cost allocators) and for electricity meters, in this document occasionally electricity meters are mentioned. All these references are for information only and are not standard requirements. The definition of communication standards for electricity meters (possibly by a reference to CEN standards) remains solely in the responsibility of CENELEC.

Table 1 gives an overview of the annexes as well as a reference to the corresponding Annexes in the former EN 13757-3:2013 where applicable.

Table 1 — Relation between the annexes of this Technical report and EN 13757–3:2013

Annex	**Description**	**Annex in** EN 13757–3:2013
A	Datagram examples for a twisted pair M-Bus link layer	E
B	Secondary search implementation instructions	F
C	Consumer feedback for smart metering applications	L
D	Installation and registration procedures	M
E	Implementation of an M-Bus data container	N
F	Datagram examples for wired and wireless M-Bus	P
G	Implementation of Descriptors	—

1 Scope

This document contains additional information to the requirements determined in EN 13757-2, EN 13757-3 and EN 13757–7, in particular examples for the implementation, datagram examples secured by security mechanism of part 7 and additional non-normative requirements beyond meter communication itself.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at https://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

3.1
byte
octet of bits

3.2
data integrity
property that data has not been altered or destroyed in an unauthorized manner

3.3
datagram
unit of data transferred from source to destination

3.4
integrity
see data integrity

3.5
key derivation
technique by which a (potentially large) number of keys are generated (“derived”) from a single initial key and non-secret variable data with each resulting key using a non-reversible process

3.6
message
functional set of data transferred from source to destination

Note 1 to entry: A message can consist of one or more datagrams.

3.7
persistent key
cryptographic key which is kept for a prolonged period

3.8
security mechanism
mode of operation of a (symmetric) cryptographic algorithm