NSAI

Standards

Irish Standard
I.S. EN 16836-1:2016

Communication systems for meters - Wireless mesh networking for meter data exchange - Part 1: Introduction and standardization framework

I.S. EN 16836-1:2016

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

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This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

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National Foreword

I.S. EN 16836-1:2016 is the adopted Irish version of the European Document EN 16836-1:2016, Communication systems for meters - Wireless mesh networking for meter data exchange - Part 1: Introduction and standardization framework

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with this document does not of itself confer immunity from legal obligations.

In line with international standards practice the decimal point is shown as a comma (,) throughout this document.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 16836-1

November 2016

ICS 33.200; 35.100.10

English Version

Communication systems for meters - Wireless mesh networking for meter data exchange - Part 1: Introduction and standardization framework

Systèmes de communication des compteurs - Réseau maillé sans fil pour l'échange de données de compteurs - Partie 1 : Introduction et cadre normatif

Kommunikationssysteme für Zähler - Drahtloses Mesh-Netzwerk für den Zählerdatenaustausch - Teil 1: Einführung und Standardisierungs-Rahmen

This European Standard was approved by CEN on 3 September 2016.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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COMITÉ EUROPÉEN DE NORMALISATION
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EN 16836-1:2016 (E)

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European foreword

This document (EN 16836-1:2016) has been prepared by Technical Committee CEN/TC 294 "Communication systems for meters and remote reading of 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 May 2017, and conflicting national standards shall be withdrawn at the latest by May 2017.

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

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

EN 16836-1:2016 (E)

Introduction

The EN 16836 series of standards details requirements for gas meters, water meters and heat meters that can interoperate with products in a mesh network that conform to this standard through a smart energy profile application layer. This standard refers to documents made freely available by the ZigBee Alliance, an organization that manages a mesh network specification (see www.zigbee.org/about/centc294).

This series of standards specifies how a mesh networking radio specification applies within the scope of European standards at the application layer, networking layer and also medium access control/physical layer (MAC/PHY). All parts are intended to be used in conjunction.

The scope of this series is in line with the scope of CEN/TC 294, "Communication systems for meters and remote reading of meters", and allows data produced by utility meters to be read by a WAN communications hub, another meter, a separate meter display unit or any other device implementing this smart energy profile standard. Within the wider smart energy profile and referenced documents, there are also clusters and data objects that relate to other devices, such as programmable thermostats, but these clusters are outside the scope of CEN/TC 294 and as such are omitted from this standard. However, details of these data items can be found in the same documents that are referenced in this standard.

EN 16836 consists of the following parts:

— EN 16836-1, *Communication systems for meters — Wireless mesh networking for meter data exchange — Part 1: Introduction and standardization framework*

— EN 16836-2, *Communication systems for meters — Wireless mesh networking for meter data exchange — Part 2: Networking layer and stack specification*

— EN 16836-3, *Communication systems for meters—- Wireless mesh networking for meter data exchange — Part 3: Energy profile specification dedicated application layer*

This standard series is created in compliance with the terms of a memorandum of understanding (MOU) between CEN/CELELEC and the ZigBee Alliance. The principles underpinning the relationship between CEN/CENELEC and the ZigBee Alliance are described in the Consortium Bridge procedure. A copy of the MOU and the Consortium Bridge can be obtained from CEN/CENELEC.

In a similar way to the FLAG Association providing registration services for manufacturer codes used in DLMS/COSEM and MBus for meter reading, the ZigBee Alliance acts as a Registration Authority for manufacturer identifiers so that there is a guarantee of no clash between manufacturers.

NOTE   The term 'ZigBee' and the ZigBee Logo are registered trademarks of the ZigBee Alliance and their use is subject to the conditions of membership.

1 Scope

This European Standard gives provisions on the standardization framework of communication systems applicable to the exchange of data from metering devices to other devices within a mesh network. It includes information on the application process functions, layered protocols and metering architecture.

This European Standard also specifies how to interpret Parts 2 and 3 of EN 16836 which give a list of references to the ZigBee documents. This standard is applicable to communications systems that involve messages and networking between a meter or multiple meters and other devices in a mesh network, such as in home displays (IHDs) and communications hubs. This standard allows routing between devices and also allows channel agility to avoid contention with other networks of the same type, or networks of other types operating in the same frequency bands.

This standard is designed to support low power communications for devices such as gas and water meters which can make data from such devices available on the mesh network at any time through a proxy capability within a permanently powered device

NOTE 1   This standard specifies a communication protocol that can embrace a multitude of smart metering architectures from a variety of countries. This standard is not designed to limit, or indeed imply a choice or preference to any one of the many possible architectures, but more over provide information on how devices can use this communications standard to publish and receive information from meters over a network.

NOTE 2   This standard defines a protocol that can be used for either a type M interface, or a type H1 interface, however H1 interfaces are not within the scope of CEN/TC 294.

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.

CEN/CLC/ETSI/TR 50572:2011, *Functional Reference Architecture for Communications in Smart Metering Systems*

IEEE 802.15.4, *IEEE Standard for Information technology — Telecommunications and information exchange between systems — Local and metropolitan area networks — Specific requirements Part 15.4: Wireless Medium Access Control (MAC) and Physical Layer (PHY) Specifications for Low Rate Wireless Personal Area Networks (LR-WPANs)*

ZigBee Specification – 05-3474 Rev 20, September 7, 2012

ZigBee Pro Stack Profile – 07-4855 Rev 05, January 2008

ZigBee Cluster Library – 07-5123 Rev 04, April 26, 2010

ZigBee Smart Energy Standard 07-5356 Rev 19, December 3, 2014

OTA Cluster Specification 09-5264 Rev 23, March 12, 2014

NOTE The above ZigBee documents and OTA Cluster Specification can be obtained from www.zigbee.org/about/centc294.

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