SLOVENSKI STANDARD
SIST EN ISO 22510:2020

01-maj-2020

Nadomešča:
SIST EN 13321-2:2013

Odprta izmenjava podatkov v avtomatizaciji stavb, regulaciji in upravljanju stavb - Elektronski sistemi za stanovanja in stavbe - Komunikacijski protokol KNX net/IP (ISO 22510:2019)

Open data communication in building automation, controls and building management - Home and building electronic systems - KNXnet/IP communication (ISO 22510:2019)

Offene Datenkommunikation für die Gebäudeautomation und Gebäudemanagement - Elektrische Systemtechnik für Heim und Gebäude - Teil 2: KNXnet/IP-Kommunikation (ISO 22510:2019)

Réseau ouvert de communication de données pour l'automatisation, la régulation et la gestion technique du bâtiment - Systèmes électroniques pour les foyers domestiques et les bâtiments - Communication KNX/IP (ISO 22510:2019)

Ta slovenski standard je istoveten z: **EN ISO 22510:2020**

ICS:

35.240.67	Uporabniške rešitve IT v gradbeništvu	IT applications in building and construction industry
97.120	Avtomatske krmilne naprave za dom	Automatic controls for household use

SIST EN ISO 22510:2020 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 22510

February 2020

ICS 35.240.67; 91.040.01

Supersedes EN 13321-2:2012

English Version

Open data communication in building automation, controls and building management - Home and building electronic systems - KNXnet/IP communication (ISO 22510:2019)

Réseau ouvert de communication de données pour l'automatisation, la régulation et la gestion technique du bâtiment - Systèmes électroniques pour les foyers domestiques et les bâtiments - Communication KNX/IP (ISO 22510:2019)

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This European Standard was approved by CEN on 1 December 2019.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN ISO 22510:2020) has been prepared by Technical Committee ISO/TC 205 "Building environment design" in collaboration with Technical Committee CEN/TC 247 “Building Automation, Controls and Building Management” the secretariat of which is held by SNV.

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 August 2020, and conflicting national standards shall be withdrawn at the latest by August 2020.

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.

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Endorsement notice

The text of ISO 22510:2019 has been approved by CEN as EN ISO 22510:2020 without any modification.

INTERNATIONAL STANDARD

ISO 22510

First edition
2019-11

Open data communication in building automation, controls and building management — Home and building electronic systems — KNXnet/IP communication

Réseau ouvert de communication de données pour l'automatisation, la régulation et la gestion technique du bâtiment — Systèmes électroniques pour les foyers domestiques et les bâtiments — Communication KNX/IP

Reference number
ISO 22510:2019(E)

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Published in Switzerland

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 247, *Building Automation, Controls and Building Management*, in collaboration with ISO Technical Committee TC 205, *Building environment design*, in accordance with the agreement on technical cooperation between ISO and CEN (Vienna Agreement).

A list of all parts in the ISO 16484 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document is intended for the design of new buildings and the retrofit of existing buildings in terms of acceptable indoor environment, practical energy conservation and efficiency.

KNXnet/IP is a protocol designed to transport KNX home and building electronic system (HBES) control frames over an IP network. It is used as an infrastructure backbone for connecting KNX sub-networks, as a communication medium for KNX-IP devices and to provide IP based services for clients (e.g. connecting a tool software to a KNX installation). The main advantages of using IP for these purposes are that IP network infrastructure is inexpensive, available almost everywhere and that the distance of two communication parties on an IP network is virtually unlimited.

Widespread deployment of data networks using the Internet protocol (IP) presents an opportunity to expand building control communication beyond the local KNX control bus, providing:

— remote configuration;

— remote operation (including control and annunciation);

— fast interface from LAN to KNX and vice versa;

— WAN connection between KNX systems (where an installed KNX system is at least one line);

— an interface to super ordinate building management and energy management systems.

A KNXnet/IP system contains at least these elements:

— one EIB line with up to 64 (255) EIB devices; or
one KNX segment (KNX-TP1, KNX-RF, KNX-PL110);

— a KNX-to-IP network connection device (called KNXnet/IP server); and typically

— additional software for remote functions residing on e.g. a workstation (may be data base application, BACnet Building Management System, browser, etc.).

KNXnet/IP differentiates between unicast and multicast services. KNXnet/IP unicast services are used to connect a single client to a single KNXnet/IP server (e.g. KNXnet/IP Tunnelling). KNXnet/IP multicast services are mainly used to connect different KNX sub-networks using IP communication on the KNX backbone. The KNXnet/IP routing services are defined for this purpose. KNXnet/IP multicast services build on top of IP multicast.

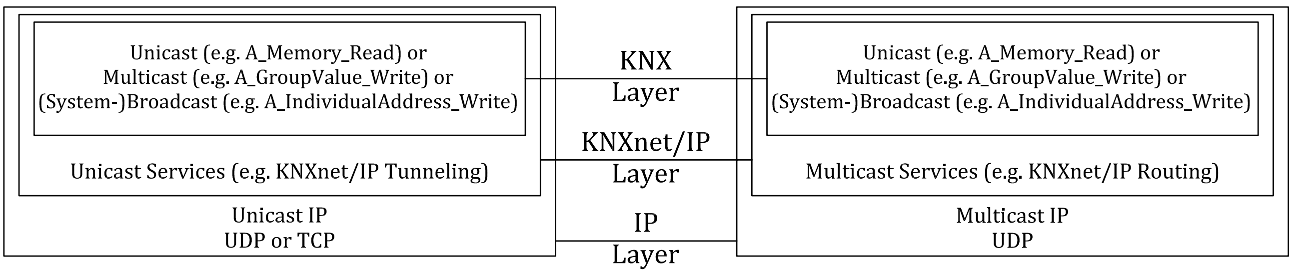

Figure 1 — Unicast and multicast in the sense of KNX, KNXnet/IP and IP

Figure 1 shows a typical scenario where a KNXnet/IP client (e.g. running ETS) accesses multiple KNX installed systems or KNX subnetworks via an IP network. The KNXnet/IP client may access one or more KNXnet/IP servers at a time. For subnetwork, routing server-to-server communication is possible.

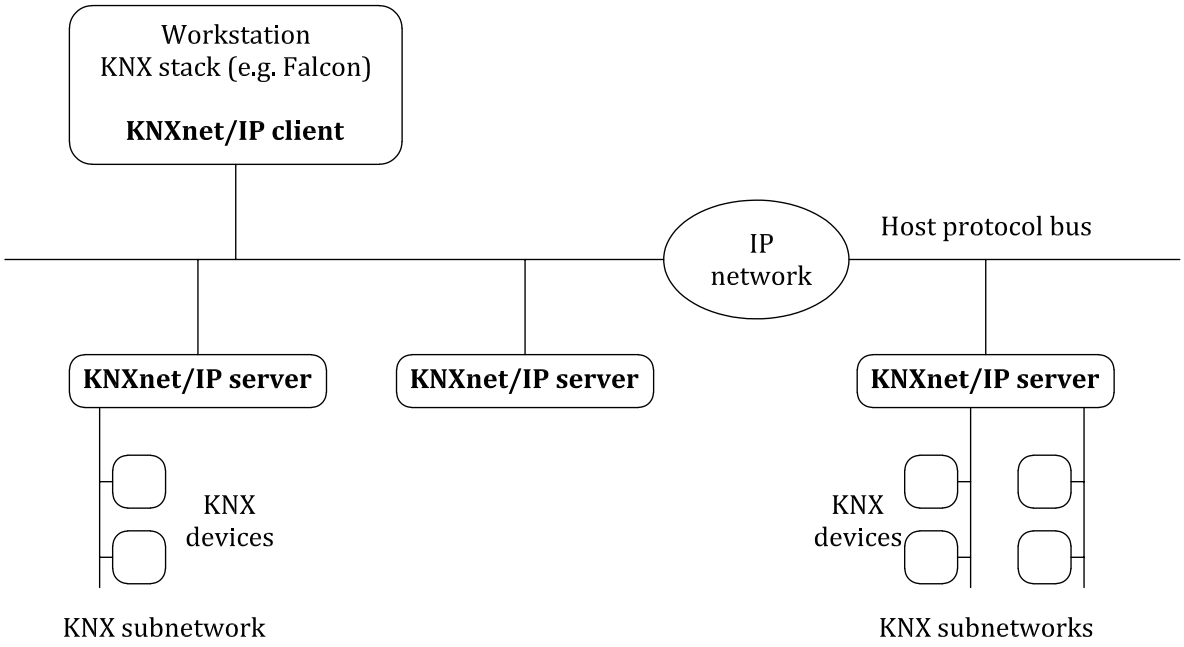

Figure 2 — Device types and configuration examples

Figure 2 shows device types and configuration examples. This document defines the integration of KNX protocol implementations within the Internet protocol (IP) named KNXnet/IP. It defines a standard protocol, which is implemented within KNX devices, Engineering Tool Software (ETS) and other implementations to support KNX data exchange over IP networks. In fact, KNXnet/IP provides a general framework, which accommodates several specialised "Service Protocols" in a modular and extendible fashion.

Open data communication in building automation, controls and building management — Home and building electronic systems — KNXnet/IP communication

1 Scope

This document defines the integration of KNX protocol implementations on top of Internet protocol (IP) networks, called KNXnet/IP. It describes a standard protocol for KNX devices connected to an IP network, called KNXnet/IP devices. The IP network acts as a fast (compared to KNX twisted pair transmission speed) backbone in KNX installations.

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:

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

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

3.1
backbone key
key used for encryption and message authentication of secure KNXnet/IP multicast communication in a KNXnet/IP routing multicast group, configured by ETS and a shared secret between all members of the secure KNXnet/IP routing multicast group

3.2
cipher
generic term that denotes the encrypted data

Note 1 to entry: Cipher is the opposite of *plain* (3.22).

3.3
common external message interface
generic structure for medium independent *KNX* (3.14) messages

Note 1 to entry: cEMI (common EMI) frames are used to encapsulate KNX messages within Internet protocol (IP) packets.

3.4
communication channel
logical connection between a *KNXnet/IP client* (3.16) and a *KNXnet/IP server* (3.20) or, in case of routing, between two or more KNXnet/IP servers

Note 1 to entry: A communication channel consists of one or more connections on the definition of the host protocol used for KNXnet/IP.