# Åben datakommunikation inden for bygningsautomation, bygningsregulering og bygningsadministration – Elektroniske systemer til boliger og bygninger (HBES) – KNXnet/IP-kommunikation

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

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# 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*

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# Foreword

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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.

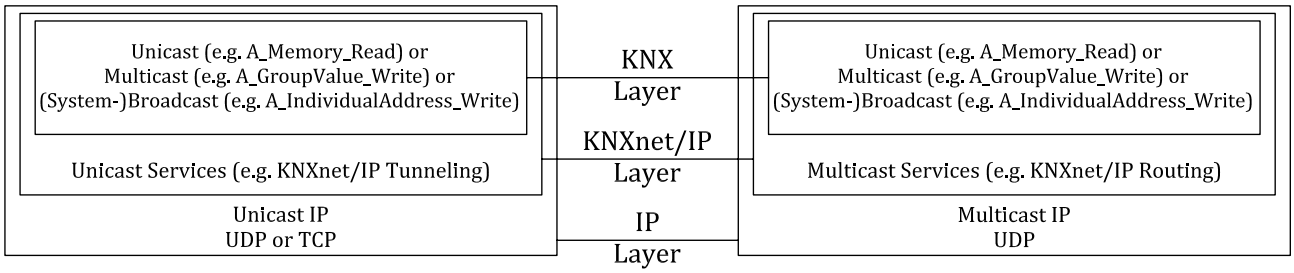


**Figure 1 — Unicast and multicast in the sense of KNX, KNXnet/IP and IP**

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.

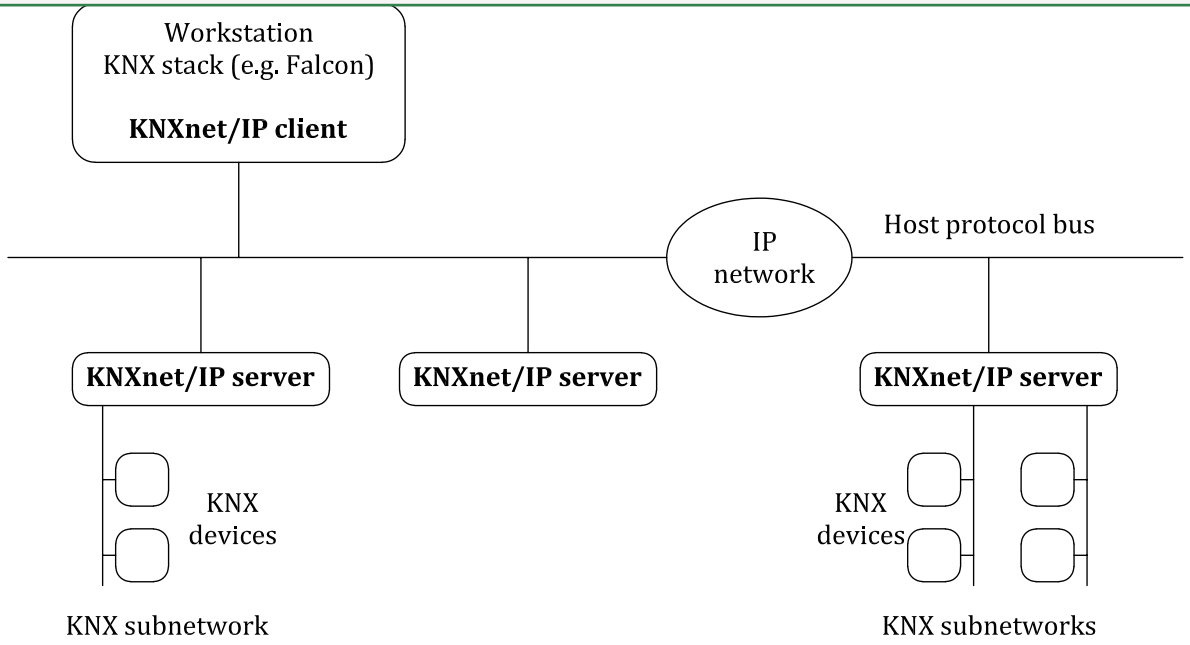


**Figure 2 — Device types and configuration examples**

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.