MEMBER

KNX

How to become a
KNX Member

KNX

Introduction

More convenience, more safety, higher energy savings: The demand for building management systems is continuously increasing.

Whether in a single-family house or in an office complex, the demand for comfort and versatility in the management of e.g. air-conditioning, lighting and access control systems is growing.

At the same time, the efficient use of energy is becoming increasingly important. More convenience and safety coupled with lower energy consumption can however only be achieved by intelligent control and monitoring of all products involved.

This however implies more wiring, running from the sensors and actuators to the control and monitoring centres. Such a mass of wiring in turn means higher design and installation effort, increased fire risk and soaring costs.

The Answer: KNX – the Worldwide STANDARD for Home and Building Control

In order to transfer control data to all building management components, a system is required that does away with the problems of isolated devices by ensuring that all components communicate via one common language: in short, a system such as the manufacturer and application domains independent KNX Bus.

This standard is based upon more than 25 years of experience in the market. Via the KNX medium (twisted pair, radio frequency, power line or IP/Ethernet-WIFI), to which all bus devices are connected, they are able to exchange information. Bus devices can either be sensors or actuators needed for the control of building management equipment such as: lighting, blinds / shutters, security systems, energy management, heating, ventilation and air-conditioning systems, signalling and monitoring systems, interfaces to service and building control systems, remote control, metering, audio / video control, white goods, etc. All these functions can be controlled, monitored and signalled via a uniform system without the need for extra control centres.

| Lighting | Blinds & Shutters | Security Systems | Energy Management | HVAC Systems | Monitoring Systems | Remote control | Metering | Audio/Video control | White goods |

KNX

Meaning of the KNX slogan

"The worldwide STANDARD for Home and Building Control"

World means:

References all over the world: the world of home and building control "speaks" KNX. Several million successful KNX installations can be found not only all over Europe but also in Asia and North and South America – a proof of just how attractive the KNX approach is.

Over 400 KNX member companies worldwide offer almost 7,000 KNX certified product groups in their catalogues, from different application domains.

Open Standard means:

KNX is approved as an International Standard (ISO/IEC 14543-3) as well as a European Standard (CENELEC EN 50090 and CEN EN 13321-1) and Chinese Standard (GB/T 20965).

KNX is therefore future proof. KNX products made by different manufacturers can be combined – the KNX trademark logo guarantees their interworking and interoperability. KNX is therefore the worldwide Standard for control in both commercial and residential buildings.

Home and Building Control means:

A benefit in every type of building: From the office complex to the average household. Whatever the kind of building is, KNX opens up complete new opportunities for building control systems while keeping the costs at a manageable level. KNX can provide solutions that could only be realized with considerable effort with conventional installation techniques. Via a single touch panel, all applications in the home or building can be controlled. From heating, ventilation and access control to the remote control of all household appliances – KNX allows completely new ways of increasing comfort, safety and energy savings in a home or building.

KNX is the worldwide STANDARD for home and building control

KNX is approved as:
- **International Standard (ISO/IEC14543-3)**
- **European Standard (CENELEC EN50090 and CEN EN 13321-1 and 13321-2)**
- **Chinese Standard (GB/T 20965)**
- **ANSI/ASHRAE Standard (ANSI/ASHRAE 135)**

Convergence of Batibus, EIB and EHS

The predecessor specifications to KNX: Batibus, EIB and EHS, came into being in the early 1990s. In 1997, the three consortia in charge of the above mentioned specifications decided to join forces. The KNX specification was published by the newly set-up KNX Association in the spring of 2002. It is based on the EIB specification, supplemented with new configuration mechanisms.

CENELEC

In December 2003, the KNX protocol as well as two of its media, TP (twisted pair) and PL (power-line) were approved by the European national standardization committees and ratified by the CENELEC Bureau Technique as the EN 50090 European Standard. The KNX Radio Frequency communication medium was approved in May 2006.

CEN

As KNX increasingly provides specifications that are not only used for the automation of electrical installation equipment, but also for HVAC applications, KNX Association also proposed its specifications to CEN for publication as a European standard for building automation control systems. CEN accepted the proposal and the KNX specifications were published by CEN as EN 13321-1 and EN13321-2.

ISO/IEC

In view of the large interest in KNX compatible products outside European countries and its proven technology, KNX Association also initiated the necessary steps to have the KNX standard approved on an international level. Countries active in CENELEC proposed the European EN 50090 norm for standardization by ISO/IEC at the end of 2004. In November 2006 the KNX protocol, including the transmission media TP, PL and RF, was approved for publication as the ISO/IEC 14543-3-x International Standard. This makes KNX the worldwide standard for home and building control.

SAC

The great interest in China in compatible KNX products and KNX technology was the main reason for KNX Association to have the international ISO/IEC 14543 standard translated into Chinese. The Chinese standardisation committee SAC TC 124 introduced the KNX standard in China and adopted it as standard GB/T 20965 in May 2013.

ANSI/ASHRAE

Also the coupling of KNX to other automation systems is internationally standardized: both the US ANSI/ASHRAE standard 135 as well as the ISO 16484-5 include mapping between KNX and BACnet.

www.knx.org

1 International Standard, therefore future proof

KNX is the worldwide STANDARD for Home and Building Control complying with:

- The International Standard ISO/IEC 14543-3,
- The European Standard series EN-50090 (CENELEC),
- The European Standards EN13321-1 and EN1332-2 (CEN),
- Chinese Standard GB/T 20965,
- US Standard ANSI/ASHRAE 135.

2 Through product certification, KNX guarantees Interoperability and Interworking of products

The KNX certification process ensures that different products of different manufactures used in different applications operate and communicate with each other. This ensures a high degree of flexibility in the extension and in the modification of installations.

3 KNX stands for high product Quality

KNX Association requires a high level of production and quality control during all stages of the product´s life. Therefore all manufacturing members have to show compliance with ISO 9001.

4 A Unique Manufacturer Independent Engineering Tool Software: ETS®

The PC software tool ETS allows the design, engineering and configuration of installations based on KNX certified products. The tool is moreover manufacturer independent: the system integrator is able to combine products of different manufacturers into one installation.

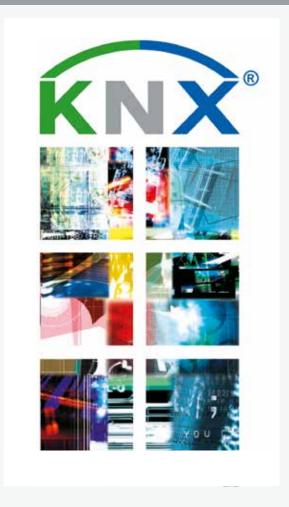### 5 KNX can be used for All Application Areas in home and building control

KNX can be used for all possible functions / applications in home and building control ranging from lighting and shutter control to security, heating, ventilation, air conditioning, monitoring, water control, energy management, metering as well as household appliances, audio and lots more.

6 KNX is fit for use in different kind of buildings

KNX can be used in both new as well as existing buildings. KNX installations can therefore be easily extended and adapted to meet new requirements, with little time and financial investment (e.g. when new tenants move into a commercial building).

7 KNX supports different configuration modes.

- Easy installation (E-mode): Configuration is done without the help of a PC but with for instance a central controller or via push buttons located on the products.
- System installation (S-mode): Planning of the installation and configuration is done via a PC with the installed ETS Software.

8 KNX supports several communication media

- KNX TP (separate bus cable)
- KNX PL (existing mains network)
- KNX RF (via radio signals)
- KNX IP (via Ethernet or WIFI)

9 KNX can be coupled to other systems

Several KNX manufacturers offer gateways to other networks, i.e. to other building automation systems, telephone networks, multimedia networks, IP networks, etc. KNX systems can be mapped to BACnet objects (as documented in the international standard ISO 16484-5) or offer the possibility to interface with the DALI technology.

10 KNX is independent from any hard- or software technology

KNX can be realized on any microprocessor platform. KNX can be implemented from scratch, but for easy market entrance, KNX manufacturers can also take recourse to providers of KNX system components. For KNX members, the use of the KNX standard is completely FREE of additional royalty fees.

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4

Configuration Modes

The KNX standard allows each manufacturer to select the most ideal configuration mode according to the target market, allowing each manufacturer to choose the right combination of target market segment and application.
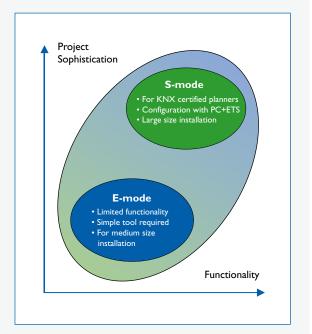
The KNX Standard includes two different configuration Modes:

S-Mode (System Mode)

This configuration mechanism is intended for highly qualified KNX installers to realise sophisticated building control functions. An installation consisting of "S-Mode" components can be planned by a common software tool (ETS® Professional) on the basis of product descriptions provided by S-Mode product manufacturers: ETS is also used to link the products and configure them (i.e. set the available parameters as required by the installation and download). "S-Mode" offers the highest degree of flexibility for the realisation of building control functions.

E-Mode (Easy Mode)

This configuration mechanism is meant for installers with basic KNX training. "E-Mode" compatible products offer limited functions compared to S-Mode. E-Mode components are already pre-programmed and loaded with a default set of parameters. With a simple configurator, each component (mainly its parameter settings and communication links) can be partly reconfigured.

Project
Sophistication

S-mode
• For KNX certified planners
• Configuration with PC+ETS
• Large size installation

E-mode
• Limited functionality
• Simple tool required
• For medium size installation

Functionality

Communication Media

Apart from the two configuration modes, the KNX standard includes several communication media. Each communication medium can be used in combination with one or more configuration modes, which allows each manufacturer to choose the right combination for the target market segment and application.

TP (Twisted Pair)

This communication medium, twisted pair, bitrate 9600 bits/s, succeeded EIB. The EIB and KNX TP certified TP products will operate and communicate with each other on the same busline.

PL (Powerline) • PL110 FSK, PL110 OFDM

This communication medium, power line, bitrate 1200 bits/s, is also a successor to EIB. EIB and KNX PL110 certified products will operate and communicate with each other on the same electrical distribution network.

RF (Radio frequency)

KNX devices supporting this communication medium use radio signals to transmit KNX telegrams. Telegrams are transmitted in the 868 MHz (Short Range Devices) frequency band, with a maximum radiated power of 25 mW and bitrate of 16.384 kBit/sec. The KNX RF medium can be developed with off the shelf components, allows uni- and bidirectional implementations, is characterized by low power consumption, and for small and medium size installations only requires retransmitters in exceptional cases. It is available as a single and a multi channel solution.

IP (Ethernet/WIFI)

As documented in the KNXnet/IP specifications, KNX telegrams can also be transmitted encapsulated in IP telegrams. In this way, LAN/WIFI networks as well as the Internet can be used to route or tunnel KNX telegrams. As such, IP routers are an alternative to USB data interfaces or TP line or backbone couplers. In the latter case, the normal TP backbone is replaced by a fast Ethernet based line.

www.knx.org

Tools

ETS (Engineering Tool Software) is the only software for the design, startup and operation of KNX systems that is manufacturer independent and compatible with all KNX products.

Alongside ETS, KNX Association offers additional tools for installers and developers for the universal application of KNX. For KNX installers, this is the iETS server for the visualization and access, and for developers these are the Falcon Library and the EITT Analysis and Simulation tools.

You can find all the KNX tools at:
www.knx.org/knx-en/software/

ETS® – Project planning, Design & Commissioning of KNX Installations, Manufacturer and Product Independent

ETS means Engineering Tool Software; a manufacturer and product independent configuration tool Software to design and configure intelligent home and building control installations based on the KNX system. ETS is a software that runs on Windows© platform based computers. KNX Association as founder and owner of the KNX Standard offers in ETS a configuration tool that is de facto a part of the KNX Standard and therefore part of the KNX system as well.

ETS Apps – Extensions to the functionality of the ETS Software tailored to the specific needs of KNX system integrators

An ETS App is an add-on software program that is used together with ETS. The purpose of an ETS App is to extend the functionality of the ETS Software according to the specific needs of KNX system integrators. Any existing software can be adapted to the ETS App interface by using the ETS SDK. Moreover, when a new ETS App is created and is available to the users, there is no need to recompile ETS. It is plug & play software! An ETS App is similar to add-ons for internet browsers or apps for smartphones.

Falcon Driver Library – Full Bus Access guaranteed

The Falcon Driver Library is the high performance. NET based Windows library for accessing the KNX network (KNX bus). Falcon allows by default bus access via LAN, but also via other interfaces like USB.

As the standard access module to the KNX network, Falcon is also used by ETS and EITT as well.

KNX Manufacturer Tool

The KNX Manufacturer Tool is the central and manufacturer independent tool for the creation of KNX compliant product descriptions. KNX manufacturers need the tool in order to:
• create and test ETS product descriptions
• have these product descriptions certified by KNX Association

After certification, KNX manufacturers offer their product descriptions as downloadable product catalogues, mostly through the Internet or via the ETS "Online Catalogue App".

EITT – Putting KNX Devices Through their Paces

EITT is a special analysis tool for KNX devices and installations. It is primarily used by manufacturers and test laboratories for testing, trouble shooting and monitoring. EITT is also a powerful tool for the analysis and simulation of the KNX device network protocol. EITT supports tests through multiple interfaces at the same time. KNX telegrams are recorded online and can be analysed based on a multitude of filter criteria.

KNX

KNX can be used for all possible functions / applications in home and building control

External Services

Energy Management

Door communication

Building Control

Ventilation

Lighting

Renewable energy

Air conditioning

Visualisation

KNX

Shutters and Blinds

Home Appliances

Audio & Video

Irrigation

Remote operation via web or telephone

Heating

Smoke Detection

Smart Metering

Anti-intrusion

ISO/IEC 14543 • CENELEC EN 50090 • CEN EN 13321

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10 Advantages of being KNX Member

1 Profit from the promotional value of using the KNX Trademark on your products

As a sign of quality, only KNX Members are able to use the KNX logo on their KNX certified devices and on their KNX-related promotional material. Let your KNX devices and company be part of the worldwide network of providers of KNX certified products.

2 Boost the international profile of your Products and Company

Benefit from the impact of publications in the KNX Journal, read by more than 100,000 people in 125 countries: free presentation of any new KNX member to the KNX community and free promotion of your latest KNX products.

3 Free Access to the KNX know-how

The KNX technology will be at your fingertips in the form of the latest version of the KNX Specifications. The KNX Standard will guide you through all topics related to KNX development, including system features, profiles, certification rules, application descriptions, testing requirements, and lots more.

4 The KNX Team and community at your service

As a KNX Member, the Brussels KNX team is at your service for support related to KNX administrative, certification, testing, marketing and tools licensing issues. Via the KNX working groups, you can exchange views with other involved KNX members on KNX related matters.

5 Privileged access to KNX Tools

As a KNX member, only you have access to the specialized KNX tools such as the KNX ETS Manufacturer tool for the creation of KNX ETS product descriptions and EITT, the uniform KNX conformity test tool.

6 Extend your Worlwide Digital Marketing

Your company name, logo and profile will appear on the International KNX website, on the social media and in the KNX Association newsletter. Your KNX product videos can be added to the KNX Association YouTube Member channel and you can present your innovations on the new KNX devices page on the website.

7 Influence the KNX decision-making process

You can participate in the KNX Working Groups and KNX Task Forces, the driving forces in KNX marketing and communication, as well as technical aspects. As a shareholder you have the opportunity to influence the future of KNX by participating in official KNX decisions during the KNX annual general meeting (AGM).

8 Open up new markets through your involvement in KNX

Join our booths with your own member panel at fairs where KNX Association is present. Participate in KNX events organized in several countries or get involved in local KNX National Groups.

9 Enhance your campaigns with free KNX PR Material

Common PR material such as KNX brochures, giveaways… is available from KNX to support you when creating more awareness for KNX with new customers.

10 Stay informed on latest evolutions in International Standardization

KNX will be able to keep you posted on latest evolutions in standardization of new home and building control related standards. You will be informed on a regular basis about the technological developments via the Technology eNews. Attend exclusive development webinars and workshops for KNX Members only.

Be part of an International Community

KNX is not only the worldwide standard for home and building control but also the global organization for:

- **KNX Members:** manufacturers providing KNX solutions in the market.
- **KNX National Groups:** KNX country organizations grouping local representatives of KNX members (and in some cases also KNX users) in a given country.
- **KNX Training Centres:** conveying knowledge on the KNX system to interested parties according to the requirements established by KNX Association. Only KNX certified training centres are able to grant persons a KNX Partner certificate.
- **KNX Partners:** are KNX certified contractors/system integrators, having successfully passed the KNX exam at a KNX certified training centre.
- **KNX Scientific Partners:** are technical institutes such as universities and/or research bodies collaborating with KNX in order to enhance the teaching of home and building control in general and KNX in particular to the institute's students and to carry out Research on KNX related matters.

- **KNX Associated Partners:** strategic alliances forged by KNX with other International Associations.
- **KNX Professionals / User Clubs:** official national clubs grouping representatives of system integrators working with KNX devices in a given country.
- **KNX Test Labs:** Accredited KNX Test Labs that carry out the software testing of a KNX device. These are neutral Test Laboratories that work independently from the manufacturers.

400 KNX Members in 38 countries

Australia • Austria • Belgium • Canada • China • Croatia • Czech Republic • Denmark • Finland • France • Germany • Greece • Hungary • India • Israel • Italy • Japan • Saudi Arab. • Latvia • Liechtenstein • New Caledonia • New Zealand • Norway • Poland • Portugal • Russia • Singapore • Slovenia • South Korea • Spain • Sweden • Switzerland • Taiwan • The Netherlands • Turkey • UAE • UK • USA

44 KNX National Groups

Argentina • Australia • Austria • Baltics • Belgium • Bosnia & Herzegovina • Brazil • Chile • China • Colombia • Croatia • Denmark • Finland • France • Germany • Hungary • India • Ireland • Italy • Korea • Luxembourg • Middle East • New Zealand • Norway • Poland • Portugal • Romania • Russia • Serbia • South Africa • South East Asia • Spain • Sweden • Switzerland • Taiwan • The Netherlands • Turkey • United Kingdom • Uruguay

350 Training Centres in 59 countries

50,000 KNX Partners in 138 countries

121 Scientific Partners in 32 countries

16 Userclubs & Professionals in 15 countries

FAQs relating to KNX product certification

1. What does the KNX Logo on a device stand for?
- That it is a product complying to strict quality regulations (e.g. EN 50491 series)
- That it is a product that complies to the KNX Standard
- That it is a product that is fully interoperable with products of different manufacturers.

2. Where can I find the applicable KNX Specifications?
KNX is an international standard (EN 50090, EN 13321-1 or ISO/IEC 14543-3) and is therefore freely available on the market.

Non-members can download the KNX specifications free of charge from MyKNX. KNX members also receive access to the KNX FTP server, where any further updates of the KNX Standard are available.

3. How does product certification work?
The product (hardware and software) must undergo the following steps:
- Registration by KNX Association Brussels;
- Within six months: testing by a KNX-accredited test centre
- Submission of a positive test report and CE declaration to KNX.

4. Where can I find a KNX-accredited test centre?
- For a complete list of all KNX-accredited test centres, please visit: www.knx.org/knx-en/community/test-labs/list/

5. What do I have to provide the test centre with?
The following is required to have a KNX device tested:
- The KNX series device to be tested
- The ETS product description registered by KNX
- Data sheet for Hardware, Data sheet for Software
- A description of the device
- Complete PIXIT or PIXIT header together with description of software for each application

- Description of device response following power failure and bus reset.

To have the protocol stack of a newly developed bus coupler tested, please contact a test lab accredited for lower layer testing.

6. What does it cost?
- Registration fee for new hardware: EUR 600, derived hardware: EUR 180
- Registration fee for new application: EUR 180, derived application: EUR 60
- Annual monitoring fees: EUR 75 for one hardware/application combination
- Test centre's test fee: depends on the test centre. As a general rule: the more objects and parameters the device has, the more expensive the test procedure.

7. What happens if faults are found?
The test centre informs the client – usually by e-mail. The client then has to remedy the fault(s) as quickly as possible. An exchange of information regarding the general fault situation will help the client reproduce the fault.

8. How can the test costs be reduced?
Please ensure that your documents and descriptions are complete. In the event of a fault, corrections should be made as quickly as possible, so that the test can be repeated quickly, thereby avoiding that in case of bigger delays, the test would need to be completely set up from scratch again. For more complex devices it may be useful for the manufacturer to instruct the test engineers or provide manufacturer-specific test sequences.

9. Where can I obtain further information?
Visit the KNX website (www.knx.org) and those of the test centres (see point 4). Or simply call the test centres. For more complex devices or for special cases, test centres generally also offer individual advice.

![KNX logo]

KNX Membership

General
You can apply for KNX Membership if your company is a manufacturer, service provider or interested party and is interested in:
- Using the KNX technology in your product development.
- KNX certified products and having access to the technical development support line.
- Furthering the KNX technology by having the possibility to participate actively in the KNX technical working groups.

- Profiting from the common communication around KNX as worked out in the KNX marketing groups (active participation also possible).

Category of Membership
Entities that comply with the relevant stipulations as given in the Articles of Association and the Internal Rules of the Association can become a member of KNX Association. The following categories exist:

Features	Shareholder	Licensee – Royalty based license fee	Interested Party
Shares	Yes	No	No
Access to KNX Specifications & Tools	Yes	Yes	Yes
Access to KNX Certification (KNX Logo on Product)	Yes	Yes	No
Free use of KNX patent pool on KNX technology	Yes	Yes	No
Take part in the decision process (General Assembly & Working Groups)	Yes	No (only as guest)	No (only as guest)
Access to all information and services provided by KNX Association	Yes	Yes	Yes

Member Fees

	Shareholder		Licensee – Royalty based license fee		Interested Party	
Staff members	Less 100 staff	More 100 staff	Less 100 staff	More 100 staff	Less 100 staff	More 100 staff
Shares	Purchase 1 share	Purchase 10 shares	No shares	No shares	No shares	No Shares
Annual Fee	1= Staff = 10 € 2,500	€12,500	1% of KNX sales at the end of the year. Minimum € 1,000. Minimum must be pay in advance, end of February (not refunded).	1% of KNX sales at the end of the year. Minimum € 2,000. Minimum must be paid in advance, end of February (not refunded).	€ 1,000	€ 2,000
	11 = Staff = 25 € 3,750					
	26 = Staff = 100 € 6,250					
Duration	Contract duration is 1 year; automatically extended with 1 year if not canceled before end of June of running year.		Contract duration is 5 year and renewable.		Contract duration is 1 year; automatically extended with 1 year if not canceled before end of June of running year.	
Note	Value of one share: approximately € 1,500 share is refunded (depending on the association result in resignation year) when shareholder resigning from association.					

How to apply for KNX Membership

If your company wishes to join the KNX Association, please read the following instructions:

1. Create an account in http://my.knx.org and activate the account with the link in the confirmation email you will receive. If you already have an account, just log in with your login details.

2. Open the online KNX Membership Application form *(https://my.knx.org/account/application/member/details)* and fill in all requested information and add your company logo and ISO certificate (if available) to the application.

3. After confirming the requirements and finalizing the application, KNX will evaluate and process your KNX Membership application[*]. You will receive an email with a proforma invoice for the payment of your KNX Membership fees (and in some cases agreements to sign). The proforma invoice can be settled by bank transfer, credit card or PayPal.

4. After receipt of payment you will be accepted as a KNX Member and will receive access to all necessary info and tools to proceed with your KNX Membership plans.

* *In case you apply as a KNX Shareholder your application will first be forwarded to the members of the KNX Executive Board (KEB) for approval before it is processed.*

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