



Smart home and building solutions.  
Global. Secure. Connected.

# Become a KNX Member



# INTRODUCTION



Remote  
Control



Heating



Household  
Appliances



Audio/Video/  
Multimedia



Security



Blinds &  
Shutters



Metering



Energy  
Management



Lighting

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

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 system is based upon several decades of experience in the market. Via the KNX medium (twisted pair, radio frequency 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.



# MEANING OF THE KNX SLOGAN

## Smart home and building solutions.

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.

## Global.

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 490 KNX member companies worldwide offer almost 8,000 KNX certified product groups in their catalogues, from different application domains. KNX is moreover approved as an International Standard (ISO/IEC 14543-3) as well as a European Standard (CENELEC EN 50090 and EN ISO 22510), Chinese Standard (GB/T 20965) and a Technical Specification in Australia and New Zealand. 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.

## Secure.

KNX provides the possibility to secure its communication through authentication and/or encryption, based on the internationally standardised AES128 algorithms.

## Connected.

Since over 10 years, KNX installations can be seamlessly coupled to IP networks through the KNXnet/IP protocol. Hundreds of solutions already exist in the market to make this possible: through the KNX IoT project, KNX hopes to further standardize these solutions.

**Smart home and building solutions.**

**Global. Secure. Connected.**

# BENEFIT FROM KNX

## A future proof technology

The smart home and building market is constantly changing and technology is improving fast. However, the latest technologies, such as internet of things, are already part of our current software. We don't wait for new ideas, we come up with them. The KNX technology is a reference in home and building control. Any automation solution you're using today will have our innovation at its core. By using KNX you will always be one step ahead of your competitors.

### The benefits of KNX

- ✓ A future proof technology
- ✓ Endless flexibility and personalization
- ✓ A safe and secure system
- ✓ Timesaving and easy installation
- ✓ An integrated and future proof solution
- ✓ An international community

## Endless flexibility and personalisation

We all know that clients have high demands in the kind of products they want to use for their smart home or building. With KNX you can now say 'yes' to their requests. To any request. Endless flexibility and personalisation in the setup of your automation project is no longer a dream. It's real. It's KNX. You can let a broad range of devices communicate with each other, even if they are from different manufacturers. KNX can even be integrated together with other automation systems. In that way, the choice which products you want to use is yours or your client's. No limits, only possibilities. KNX is your all-in-one solution for every automation challenge.



## A safe and secure system

Security is a hot topic and the safety demands for control systems are increasing. At KNX we're committed at being compliant with the highest security requirements in the market. We value safety very highly because we know you care. Because your client cares.

With KNX you can be rest assured of a secure installation process, so that both you and your client don't have to worry about that. No extra effort or system from the professional is needed. KNX Secure is integrated in our existing software. Security was never that easy.





## Timesaving and easy installation

KNX wants to make your professional life easier. Our software stands for simplicity. There's only one tool for commissioning with an easy to use interface. This will save you valuable time that you can use for the things that really thrive your business.

Moreover, your client can take control of his own smart home or office. Our newest software, ETS Inside, allows your client to make small modifications himself on his tablet or smartphone. A time-saver for both of you.

## An integrated solution

KNX has several decades of experience in building automation. You can work with different products from different manufacturers. KNX can even be coupled to other systems and is independent from any hard- or software technology.

Moreover, our technology can be used in both new as well as existing buildings. A KNX installation can be easily extended and adapted to new needs, with little time and financial investment. KNX can be implemented in both small-size family houses as well as large buildings.



## An international community

With KNX you don't stand on your own. You become part of a big community of system integrators, member companies, training centres... We will help you to improve your business. You can get in touch with installers not only to discuss about the use of our technology but also about sales and how to market yourself to attract more clients. They all face the same problems as you do and by exchanging experiences everybody wins.

# STANDARDISATION

## **KNX is approved as**

International Standard (ISO/IEC14543-3-1 to 7)

European Standard (CENELEC EN50090 and EN ISO 22510)

Chinese Standard (GB/T 20965)

ANSI/ASHRAE Standard (ANSI/ASHRAE 135)

Australian and New Zealand Technical Specification

### **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 ISO 22510.

### **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 14543-3-1 to 7 International Standard. In 2019, the KNXnet/IP Secure specification became international standard for Building Automation as EN ISO 22510. 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.

### **Standards Australia**

Also in Australia and New Zealand, local standardization investigated ways to adopt the KNX standard locally. In 2017, KNX became a Technical Specification in Australasia.



# 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 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. Since 2017, KNX also offers the ETS Inside software, which allows to design, commission and diagnose installations with the help of mobile devices (e. g. tablets). The intuitive user interface helps KNX newcomers to manage smaller size installations without much prior training.

**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.

Tool	ETS Professional	ETS Lite	ETS Inside	No Tool
Configuration Mode	S-Mode	S-Mode	S-Mode	E-Mode
Project size	Any size	Small/Medium	Small/Medium	Small
Product functionality	Full	Full	Full/Partially Limited	Very limited
ETS Apps	Yes	Yes	No	No
Device Configuration Apps	Yes	Yes	No	No
Online Catalogue	Yes	Yes	Yes	No

# 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.

**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 kbps. Other frequencies are defined in the KNX standard for regions other than Europe. 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.

# ENGINEERING SOFTWARE

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, ETS Apps are offered, which allow to extend the functionality of the ETS program. For developers these are the Falcon Library and the EITT Analysis and Simulation tools. You can find all the KNX tools at:

<https://www.knx.org/knx-en/for-professionals/software/>



## ETS®

### **Project planning, Design and Commissioning of KNX Installations, Manufacturer and Product Independent**

ETS is a completely new generation of smart automation software. ETS stands for Engineering Tool Software. It's a manufacturer independent configuration software tool to design and configure intelligent home and building control installations based on KNX. ETS is a software, which runs on Windows® platform based computers.

One ETS5 Professional allows composing solutions for all application areas for which KNX certified products are available. In that way, using ETS5 Professional empowers your business – not only technologically – but above all commercially.



## ETS Inside

### **All the benefits of the successful KNX standard in a mobile application, easy to understand and allowing your customers to configure the installation themselves.**

ETS Inside is the entry level version of your trusted ETS Professional that runs on any existing or new KNX installation. Configure settings from your – or your customer's – tablet or smartphone. Perfect for small and medium installations. ETS Inside offers the next step in home automation in a stable and secure way.



## ETS Apps

### **Extensions to the functionality of the ETS Software tailored to the specific needs of KNX system integrators**

ETS5 Professional is sufficient for users wishing to install and configure KNX systems. However, users may want additional functionalities when applying KNX. With the ETS Apps you can now realize more creative ideas to give your automation project that extra spark.

And the best of all is that you don't have to worry about compatibility. The ETS Apps offer limitless options but are still compatible with the entire KNX system. Owners of ETS wishing additional possibilities only need to download, install and license the apps to enjoy the extras.

## Which software package is the best for me?

ETS Inside	ETS Lite	ETS Professional
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You want to create your first project with KNX but you don't know which software package you need? A comparison of ETS Inside, ETS Lite and ETS Professional will help you choose which software answers your needs best. Visit for more info

[comparesoftware.knx.org](https://comparesoftware.knx.org)



# DEVELOPMENT SOFTWARE



## Falcon Driver Library

### **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 and have them 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

### **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.

# 10 ADVANTAGES OF BEING A 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 Worldwide Visibility through the KNX website**

Your company name will appear on the International KNX website, translated into many languages and also constituting the communication platform for the KNX country organizations ("KNX National Groups") in the individual countries (so far more than 40).

## **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**

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 has partnerships with many international standardization organizations, with the purpose of further enshrining KNX in international standards: in view of this privileged position, KNX will be able to keep you posted on latest evolutions in standardization of new home and building control related standards.

## 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 <https://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. Please add your company logo and ISO certificate (if available) to the application.

# 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: see table

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.	1% of KNX sales at the end of the year.	€ 1,000	€ 2,000
	11 = Staff = 25 € 3,750		Minimum € 1,000.	Minimum € 2,000.		
	26 = Staff = 100 € 6,250		Minimum must be paid in advance, end of February (not refunded).	Minimum must be paid in advance, end of February (not refunded).		
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 years 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.					

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.

# FAQS RELATING TO KNX PRODUCT CERTIFICATION

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## 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.

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## Where can I find the applicable KNX Specifications?

KNX is an international standard (EN 50090, EN ISO 22510 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.

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## 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.

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## 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/](http://www.knx.org/knx-en/community/test-labs/list/)

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## 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.

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## 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.

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## 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.

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## How can the test costs be reduced?

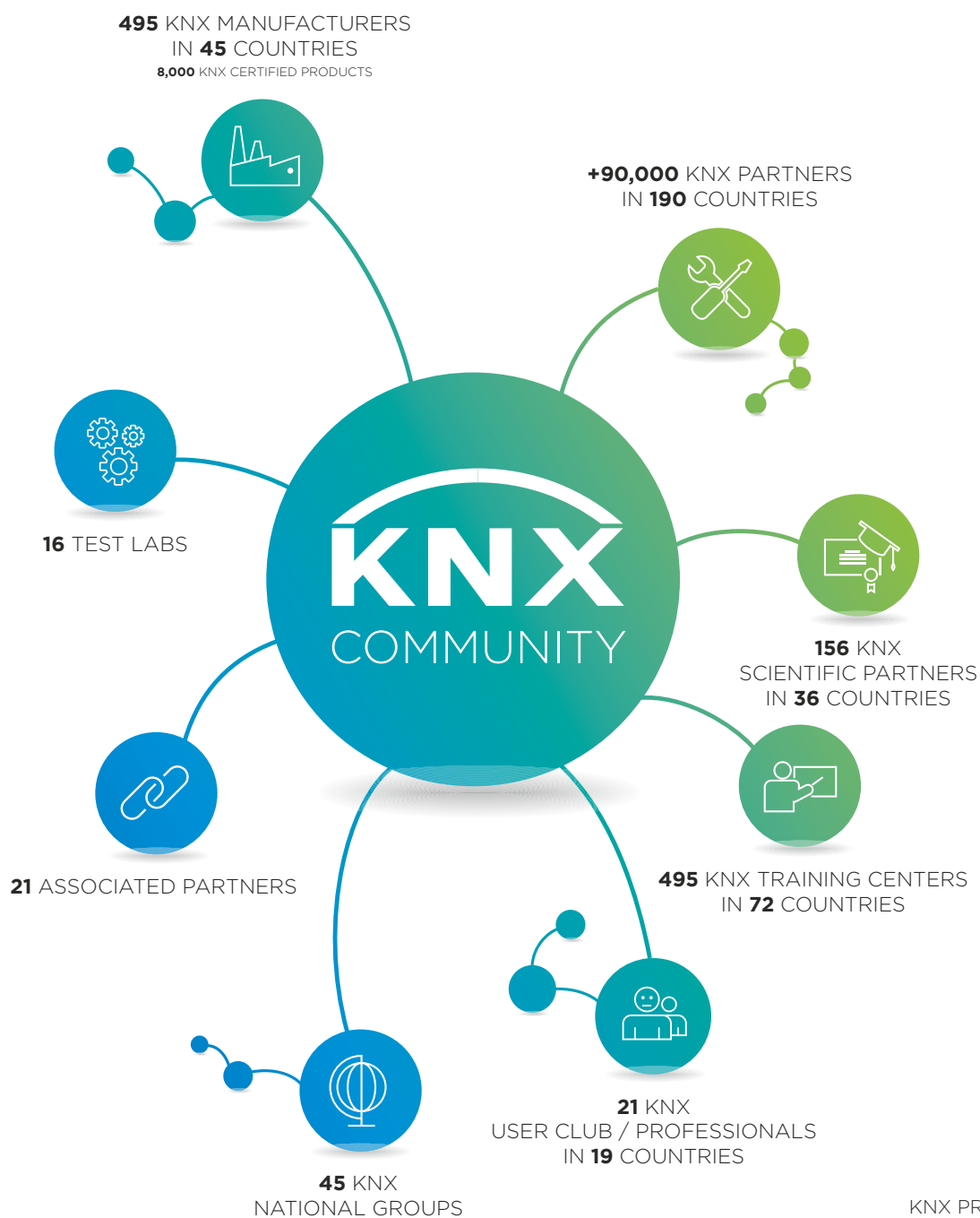
Please ensure that your documents and descriptions are complete. In the event of a fault, corrections should be made as quickly as possible, so that the test can be repeated quickly, thereby avoiding that in case of bigger delays, the test would need to be completely set up from scratch again. For more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

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## Where can I obtain further information?

Visit the KNX website ([www.knx.org](http://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.

# BE PART OF AN INTERNATIONAL COMMUNITY



KNX PROJECTS  
IN **190** COUNTRIES

## WITH KNX YOU DON'T STAND ON YOUR OWN.

We are a global organization with several decades of experience and a broad network of people who have embraced our technology. By joining our community you become part of an international family of installers, manufacturers, training centres, scientific partners...



Become a KNX Member | 12



# APPLICATIONS

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



AIR CONDITIONING



CLOUD



METER READING



BLINDS SHUTTERS  
WINDOWS



SANITARY  
MANAGEMENT



E-MOBILITY CAR



ENERGY MANAGEMENT



EXTERNAL  
SERVICES



VENTILATION



ELECTRICAL  
INSTALLATION



SECURITY



HEATING



ANTI INTRUSION



HOUSEHOLD  
APPLIANCES



DOOR COMMUNICATION



LESS CO<sub>2</sub>



SMART PHONE



IRRIGATION  
WATERING



FIRE AND SMOKE  
DETECTION



RENEWABLE ENERGY



LIGHTING



WORLDWIDE



ENTERTAINMENT



VISUALISATION  
BUSINESS



REMOTE CONTROL VIA  
WEB AND SMART PHONE



## KNX MEMBERS | 495 Manufacturers from 45 Countries



Smart home and building solutions.  
Global. Secure. Connected.

