

Konnex Association



**Promotes
the World's first open STANDARD
for Home and Building Control**



Index

The Association	4
The objectives.....	5
The organisation	6
Konnex Technical Board	6
• ISAG; International Standardisation Advisory Group.....	6
• KonCert; Konnex Certification Group.	6
• KSG; Konnex System Group.....	7
• TFI; Task Force Interworking.....	7
• KTG; Konnex Tools Group.	7
• Training Group.....	7
• TFH; Task Force Handbook.	7
• SDSG; Software Development Steering Group.....	7
Konnex Marketing Board	7
• WG-1. Components and Software.....	7
• WG-3. Utilities and Services.....	8
• WG-4. Household appliances and End users.....	8
• TF-1. Marcom.....	8
• TF-2. Residential Buildings.....	8
• TF-3. Application Range.....	8
• TF-4. Strategic marketing.....	8
• TF 5. Organisation.....	8
• TF-6. National Groups.....	8
The KNX standard	9
Major advantages:.....	9
• Independent from any hard- or software technology	9
• Interoperability	9
• Product quality.....	9
• Manufacturer independent functionalities.....	9
• Common, manufacturer independent Engineering Tool Software.....	9
Configuration modes	10
• The “S-mode” (System mode).....	10
• The “E-mode” (Easy mode).....	10
• The “A-mode” (Automatic mode).....	10
Communication media.....	11
• TP-0, (Twisted pair, type 0)	11
• TP-1, (Twisted pair, type 1)	11
• PL-110, (Power-line, 110 kHz).....	11
• PL-132, (Power-line, 132 kHz).....	11
• RF, (Radio frequency on 868 MHz).....	11



Konnex Association

Promotes the implementation of the World's first
open STANDARD for Home and Building Control
KNX

• Ethernet, (KNX-over-IP)	11
Common object definitions	12
International Standardisation Bodies	14
Members of <i>Konnex Association</i>	17
Membership of <i>Konnex Association</i> ?	20
Categories of members	20
• "M"-members	20
• "S"-members	20
• "I"-members	20
Joining, resignation, expulsion	20
Rights Category "M"- and "S"-members	20
Rights Category "I"-members	21
Member obligations	21
Services provided to members	22
Fees	22
How to develop a KNX compatible device?	24
Useful addresses hardware	25
Useful addresses software	25
Certification procedure for products	26
Main fees for product certification	27
Accreditation of test laboratories	27
Certification of training centres	27
Possibilities for non-certified training centres:	28
Certification costs for training centres:	28
Ordering ETS ^{TM®}	28
Konnex scientific partnership forum	29
Contact	29

The Association

In May 1999, members of the following associations have founded **Konnex Association**:

- BatiBUS Club International (BCI)
- European Installation Bus Association (EIBA)
- European Home Systems Association (EHSA)

The main objective of this Association is to promote the newly defined "one-single-standard" for field bus applications in Homes and Buildings.

This standard, called **KNX**, is based on the well-established technology of EIB and enlarged with the configuration mechanisms and physical media from BatiBUS and EHS.

Konnex Association is an international non-profit organisation governed under Belgium Law. The General Assembly - the highest legal authority of the association, in which all members have a seat - meets at least once a year to approve the activities undertaken and the budget for the coming year. The executive board (KEB), elected amongst the members of the General Assembly, is responsible for the association's strategy, its standard **KNX** and for the budget proposal.

At the General Assembly in 2001 the Konnex Executive Board was elected for a 4-year period. The following companies have a seat in this Board (situation 2004), whereby the President is a non-voting member.

Company	Member	Function
• ABB Stotz-Kontakt GmbH	Mr. Bernhard Schmeing	
• Albrecht Jung GmbH & Co. KG	Mr. Harald Jung	
• Busch-Jaeger Elektro GmbH	Mr. Hans-Georg Krabbe	
• Delta Dore	Mr. Philippe Fouquet	
• Electrolux	Mr. Fabrizio Dolce	
• Hager (FLASH)	Mr. Bernard Schott	
• Insta Elektro GmbH & Co. KG	Dr. Herbert Schliffke	
• Legrand S.A.	Mr. Alain Lambert	
• Merten GmbH & Co. KG	Mr. Udo Neumann	
• Ritto GmbH & Co. KG	Mr. Udo Neumann	
• Siemens AG	Dr. Peter Penczynski	President
• Siemens AG	Mr. Peter Ferstl	
• Siemens Building Technologies	Mr. Andrew Fiddian-Green	
• Trialog	Ms. Madeleine Francillard	
• Schneider Electric S.A.	Mr. Claude Matinal	Vice-president

The executive board is assisted by 2 permanent boards:

- Technical Board (KTB), convenor Dominique Beck - Hager Electro SA.
This Board coordinates all activities regarding the development of the common standard **KNX** and the procedures for the certification of **KNX** products.
- Marketing Board (KMB), convenor Claude Matinal – Schneider Electric SA .
This Board coordinates the communication and promotional activities of **Konnex Association** around the **KNX** standard, as well as the activities undertaken in the different markets by the national Konnex groups.

For the daily activities the executive board has nominated a team of directors each responsible for a resort of activities:

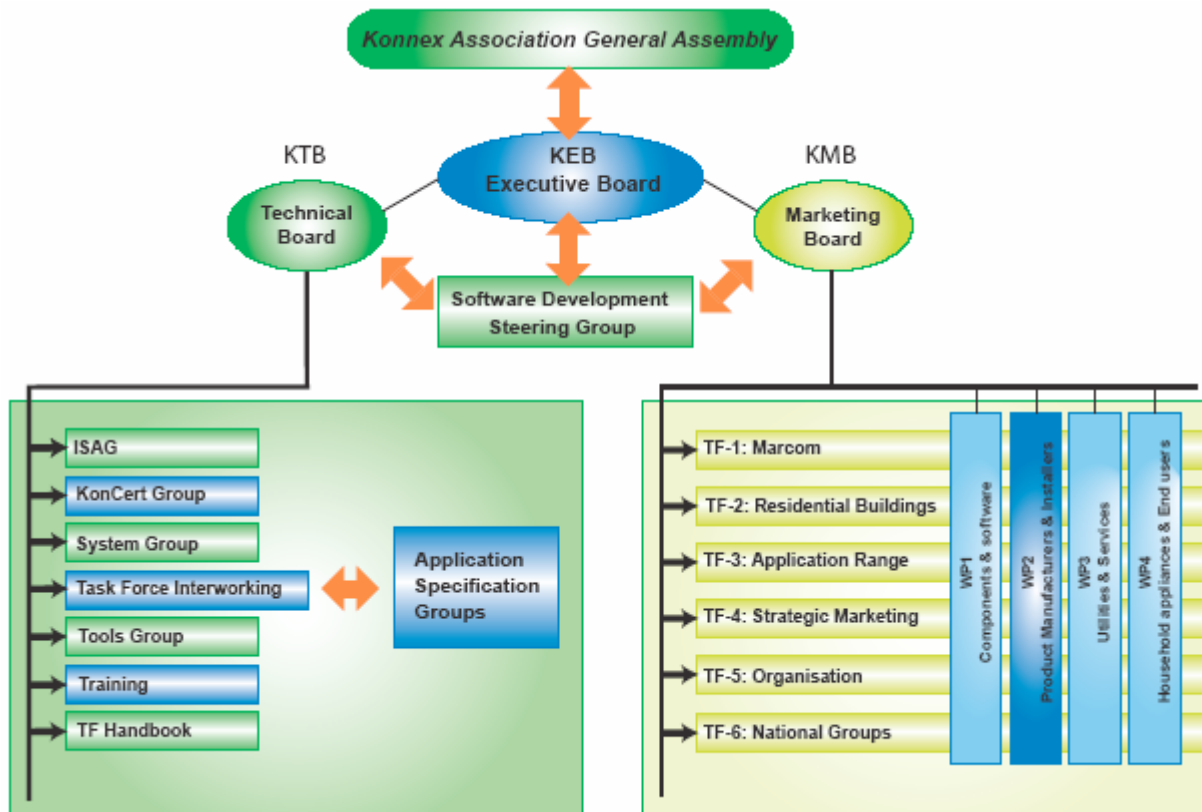
- Joost Demarest Administration and Certification
- Harry Crijns Marketing and communication

The objectives

The objectives of the association are oriented towards the development and promotion of an international communication standard for Home and Building Electronic Systems by (*excerpt from the Konnex Association statutes*):

- Develop through studies and exchange of their results a single stable and affordable system technology with the goal to improve overall market acceptance and expand the today's market, (mostly in commercial buildings), into the residential market,
- Encapsulating in one common standard as a platform for future evolution today's existing Home and Building Electronic Systems,
- Defining and improving the specification related to protocol, different media, configuration modes, communication models etc., whilst respecting its coherence,
- Standardizing system requirements, including test methods and interworking,
- Managing the relevant system related intellectual property rights, establishing trademarks and issuing trademark licenses,
- Setting-up an appropriate certification system to enable certification of "products" (hardware, software, components) and services in order to guarantee system compatibility and inter-working.
- Introducing this standard into the appropriate international HBES standardisation bodies and actively promoting it to become the norm,
- managing an appropriate software tool system,
- managing an appropriate training system for professional users such as contractors, planners and installers,
- Circulate all pertinent information that relates to the association's purpose.

The organisation



Konnex Technical Board

As seen in the above mentioned figure the **Technical board (KTB)** has the following workgroups and taskforces:

- **ISAG; International Standardisation Advisory Group.**
Convenor Dominique Beck - Hager Electro SA. The objective of this advisory group is to define the strategy of **Konnex Association** in the international standardisation arena. (CENELEC TC 205 and CEN TC 247).
- **KonCert; Konnex Certification Group.**
Convenor Georg Luber – Siemens AG. This workgroup is responsible for the continuous update of Volume 4 (Hardware requirements), Volume 5 (Certification Manual), Volume 8 (Test Specifications) of the **KNX Specifications**



Konnex Association

Promotes the implementation of the World's first
open STANDARD for Home and Building Control
KNX

- **KSG; Konnex System Group.**
Convenor Marc Goossens – *Konnex Association*.
This workgroup is responsible for the continuous update of Volume 3 (System Specifications) and Volume 6 (Profiles) of the **KNX** Specifications.
- **TFI; Task Force Interworking.**
Convenor Steven De Bruyne – *Konnex Association*. This Task Force is responsible for the **KNX** Interworking Model as well as the preparation (if necessary in appropriate application specification groups), assessment and approval of functional block descriptions for the various **KNX** application domains.
- **KTG; Konnex Tools Group.**
Convenor Marc Goossens – *Konnex Association*.
This workgroup is responsible for the technical specification of **KNX** software tools (amongst others ETS). The tools strategy and the priority of the extensions to the **KNX** software tools is proposed by the SDSG.
- **Training Group.**
Convenor Yves Peters - Hager Electro SA.
This workgroup is responsible for the update of the **KNX** Training documentation and the requirements for **KNX** training centres.
- **TFH; Task Force Handbook.**
Convenor Dominique Beck - Hager Electro SA.
This workgroup is bearing the ultimate responsible for the publication of the **KNX** Specifications
- **SDSG; Software Development Steering Group.**
Convenor Peter Ferstl – Siemens AG. This steering group has advisory power to the Board of the EIB association, which remains the company responsible for ETS software development and sales

Konnex Marketing Board

The Marketing Board (KMB) responsible for the strategy in marketing and communication regarding **Konnex Association** and the **KNX** Standard.

KMB supervises the following workgroups and Task Forces:

- **WG-1. Components and Software.**
Convenor Ulrich Fiedler – STMicroelectronics. This workgroup is responsible for the marketing of **Konnex Association**, its standard **KNX** and the available development technology towards product management and development departments of our members and potential members. Target group OEM.
- **WG-2. Product Manufactures and Installers.**
Convenor Patrick Meyer – Hager Electro SA. This workgroup deals with the marketing and communication of **Konnex Association**, its standard **KNX** and the developed



Konnex Association

Promotes the implementation of the World's first
open STANDARD for Home and Building Control
KNX

application concepts, for Home and Building controls. The communication addresses the professional installation market channel.

- **WG-3. Utilities and Services.**

Convenor nn. This workgroup is responsible for the marketing and communication of **Konnex Association**, its standard **KNX** and the developed application concepts, for Home and Building control systems which should be addressed to the professional service providers.

- **WG-4. Household appliances and End users.**

Convenor nn. This workgroup is responsible for the marketing and communication of **Konnex Association**, its standard **KNX** and the developed application concepts mainly for Home control systems networks. The communication has to be addressed to the house hold appliances sales channels and the end-user.

Apart from the 4 main Working Groups the General Assembly 2004 has approved the KMB proposal to set-up of 6 additional Task Forces to support the marketing and communication to the different target groups.

- **TF-1. Marcom.**

Convenor Wouter van den Bos – *Konnex Association*.

The main objective of this Task Force is to enforce the market recognition of **KNX** and the association by an appropriate communication concept, which can be implemented by countries (NG) and member companies.

- **TF-2. Residential Buildings.**

Convenor Gunde Nilsson – Schneider Electric AB.

The main objective of this Task Force to develop and implement a corporate strategy to enter the Residential Buildings Market with solutions based on the open standard **KNX**.

- **TF-3. Application Range.**

Convenor Harry Crijns - *Konnex Association*.

The main objective of this Task Force is to enlarge and strengthen the application ranges in which solutions based on **KNX** will be used.

- **TF-4. Strategic marketing.**

Convenor Christian Knorr – Siemens AG.

The main objective of this Task Force is to observe technology trends and market needs, which may strengthen the position of the **KNX** standard.

- **TF 5. Organisation.**

Convenor Patrick Meyer – Hager Electro SA

The main objective of this Task Force is to define and implement processes (BSI, ISO 9000/200x) within the Association, with the aim to have slim but efficient organisation to execute its mission.

- **TF-6. National Groups.**

Convenor Harry Crijns - *Konnex Association*.

The main objective of this Task Force is to develop and maintain National Groups worldwide as multipliers in the communication chain towards their national Markets.

The KNX standard

Major advantages:

- **Independent from any hard- or software technology**

The **KNX** technology has become the world's first open, royalty-free and hardware platform independent, standard for Home and Building control systems. It is completely free of additional royalty charges to fee paying members.

- **Interoperability**

It ensures that products of different manufactures used in different applications will operate and communicate with each other. This permits a high degree of flexibility in the extension and in the modification of installations.

- **Product quality.**

Konnex Association requires a high level of production and quality control during all stages of the product life. Therefore all manufacturing members have to show compliance to ISO 9001 before they even can apply for a **KNX** product certification.

Besides the manufacturer compliance ISO 9001, the products have to comply with the requirements of the European standard for Home and Building Electronic Systems, i.e. EN 50090-2-2. In case of doubt, **Konnex Association** is even entitled to have certified products retested or can require from the manufacturer test reports underlying his declaration of hardware conformity.

- **Manufacturer independent functionalities.**

The **KNX** standard contains application profiles for many common applications in Home and Buildings. Under the Technical Board's supervision several application specification workgroups make proposals for standardisation of functionalities (inputs, outputs, diagnostic data and parameters) in their specific application domain. To ensure a high degree of cross-discipline and multi-vendor interoperability, the TF-Interworking re-evaluate these proposals, before a decision is taken to incorporate an application profile into the **KNX** standard.

- **Common, manufacturer independent Engineering Tool Software.**

Konnex Association made available an manufacturer independent engineering tool software to plan link and configure **KNX** certified products.

Configuration modes

The **KNX** standard allows each manufacturer a free choice between the configuration mode and the communication medium for the development of a product in a system application.

The **KNX** Standard incorporates 3 different configuration modes:

- **The “S-mode”** (System mode)

This configuration mechanism is meant for well trained installers to realise sophisticated building control functions. All “S-mode” components in an installation will be addressed by the common software tool (ETS), based on the product database provided by the manufacturer, for their planning, configuration and linking. With ETS each component can exactly be programmed, according to the specified requirements. The “S-mode” configuration offers has the highest degree of flexibility in functionality and in communication links.

- **The “E-mode”** (Easy mode)

This configuration mechanism is meant for installers with a basic training providing a fast learning curve solution but with limited functions, compared to “S-mode”.

The “E-mode” components are already pre-programmed and loaded with a default set of parameters. With a simple configurator, each component can partly be reconfigured, mainly parameter settings and communication links.

Konnex Association offers a manufacturer independent configurator called “ETS 3 Starter” to allow installers to plan, configure and link special selected **KNX** certified products in installations with standard functionalities.

- **The “A-mode”** (Automatic mode)

This configuration mechanism is specially developed for end-user applications e.g. household appliances or consumer installation add-ons, sold via the end-user sales channels.

The “A-mode” components have automatic configuration mechanisms, that adapt their communication links to other “A-mode” components in the network. Each component contains a fixed setting of parameters and a library with instructions how to communicate with other “A-mode” components.

Thanks to the ETS 3 Starter some **KNX** certified products can be used in more than one configuration mode. For instance in S-mode with the “ETS 3 Professional” and in E-mode with the “ETS 3 Starter”.

Future versions of ETS will be able to link all **KNX** certified products in a installation regardless their configuration mode.

Communication media

Apart from the 3 configuration modes, the **KNX** standard describes 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 regarding the market segment and application.

- **TP-0**, (Twisted pair, type 0)

This communication medium, twisted pair, bitrate 4800 bits/s, has been taken over from BatiBUS. The **KNX** TP₀ certified products designed for this medium, will operate on the same busline as the BatiBUS certified components but they will not exchange information amongst each other.

- **TP-1**, (Twisted pair, type 1)

This communication medium, twisted pair, bitrate 9600 bits/s, has been taken over from EIB. The EIB and **KNX** TP₁ certified products will operate and communicate with each other on the same busline.

- **PL-110**, (Power-line, 110 kHz)

This communication medium, power line, bitrate 1200 bits/s, has also been taken over from EIB. The EIB and **KNX** PL₁₁₀ certified products will operate and communicate with each other on the same electrical distribution network.

- **PL-132**, (Power-line, 132 kHz)

This communication medium, power line, bitrate 2400 bits/s, has been taken over from EHS. **KNX** PL₁₃₂ certified components and EHS 1.3a certified products, will operate together but will not communicate with each other, without a dedicated protocol converter. The work-group "A-mode", will define this converter in the A-mode specifications.

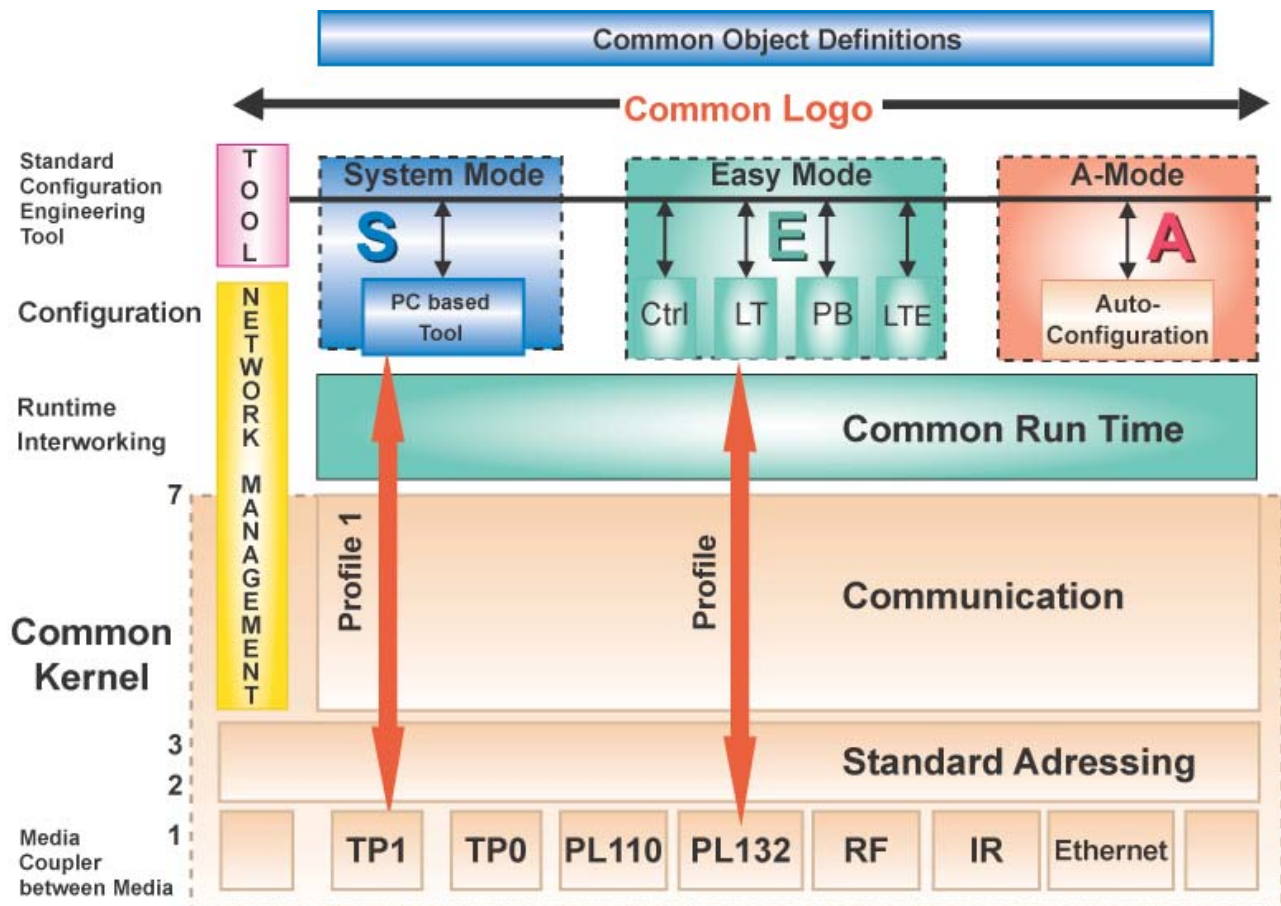
- **RF**, (Radio frequency on 868 MHz)

This communication medium, radio frequency with a bitrate of 38.4 kbits/s, has been developed directly within the framework of the **KNX** standard.

- **Ethernet**, (KNX-over-IP)

This widespread communication medium can be used in conjunction with the "KNX-over-IP" specifications, which allow tunnelling of **KNX** frames encapsulated in IP frames.

Common object definitions



Ctrl = Controller Approach LT = Logical Tag (e.g Code Wheel) PB = Push Button approach LTE = Logical Tag extended

The **KNX** Device Network results from the formal merger of the 3 leading systems for Home and Building Automation; BatiBus, EIB and EHS. The common specification of the **KNX** system provides, besides powerful runtime characteristics, an enhanced “toolkit” of services and mechanisms for network management.

On the **KNX** Device Network, all the devices come to Life to form distributed applications in the true sense of the word. Even on the level of the applications themselves, tight interaction is possible, wherever there is a need or benefit. All march to the beat of powerful Interworking models with standardised Datapoint Types and “Functional Block” objects, modelling logical device channels.

KNX explicitly encompasses a methodology and PC tools for Project Engineering, i.e. for linking a series of individual devices into a functioning installation, and integrating different **KNX** media and

configuration modes. This is embodied in the vendor-independent Engineering Tool Software (ETS) suites for Windows.

In contrast to the “one size fits all” creed, the **KNX** system is entirely independent of any specific microprocessor platform or even architecture. Depending on the profile chosen by the manufacturer, he can select any suitable industry-standard chip, or opt for available **KNX** OEM solutions like Bus Coupling Units, BIM's, chip sets etc. Some **KNX** profiles allow a tiny system footprint (say < 5 kb), and easily run on an 8-bit processor. Other implementations use 16- or 32 bit processors, or even PC's in the full sense of the word.

Through all of the above, **KNX** Device Networks may be flexibly adapted to present an optimal solution for each application domain and installation. Furthermore, they have also the capability to be inserted in a “Service Network” environment (usually based on broadband networks running **IP**, the Internet Protocol), to further amplify and leverage the benefits of our intelligent home, office or business environment.

A product designed with one of the above mentioned configuration modes, in combination with one of the above mentioned communication media, results in a **KNX** compatible device, certifiable by **Konnex Association**.

Members of **Konnex Association** are convinced that the Home and Building market requires open, flexible and interoperable solutions in the communication between controllers, actuators and sensors for standard applications on field bus level. The **KNX** standard is the first one which corresponds to these needs.

The fact that you can make a free choice within the **KNX** standard between the configuration mode and the communication medium you want to use for your application, makes **KNX** the No.1 field bus choice for all Home and Building applications.

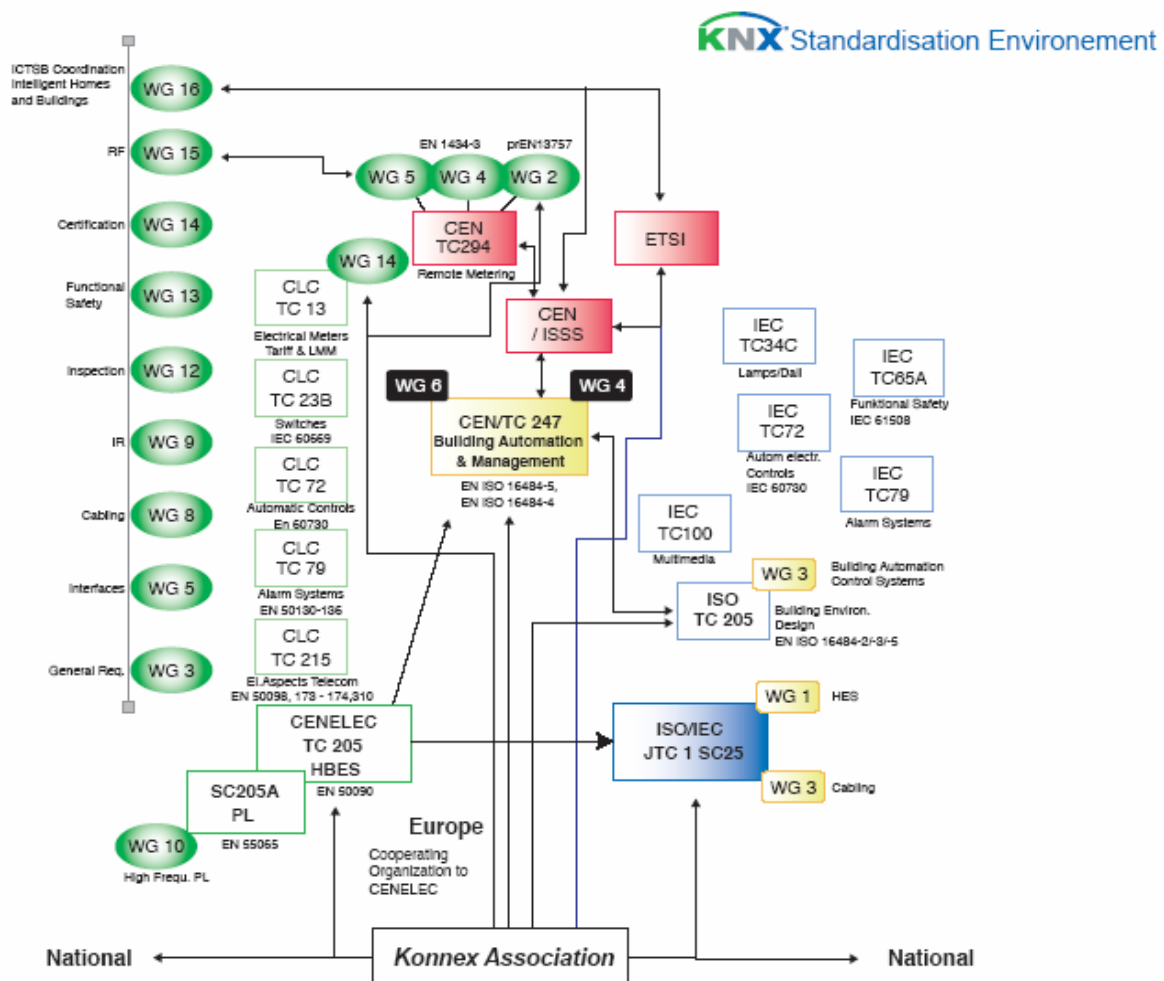
International Standardisation Bodies

Standards and certified products conforming to standards, are an important asset of to-day's society. Both ensure that users and/or consumers interested in specific technologies may choose from a variety of products from different manufacturers as they are certain that they will get the expected features.

In addition, the authorities, in particular the European Union, have identified standards as an important means for enhancing the protection of human beings and the environment.

In line with the common policy of the three legacy partners, BatiBUS, EIBA and EHSA, it has been the objective since the beginning to provide this resulting **KNX** standard in the interest of users and consumers on the one hand but also in the interest of ensuring a broad market for the members on the other hand. Home & Building Electronic System (HBES) standardisation activities were initiated in the late 1980's in CENELEC/TC 105 (renumbered later to TC 205) and in ISO/IEC JTC1/SC25/WG1.

In parallel, CEN/TC 247 has been standardising for 10 years, "Controls For Mechanical Building Services".



The previous figure gives an overview of these different standards bodies, the work of which has to be taken into consideration under **Konnex Association** standardisation activities.

Whilst internationally little results have been achieved, CENELEC/TC 205 has issued in 1995 the first parts of the EN 50090 set on Home and Building Electronic Systems. Part 2.2 in particular, has become very important as it puts forward the technical requirements such products have to meet under the Low Voltage Directive and the EMC Directive of the EU. Moreover, a substantial set of technical reports has been issued. In addition the sub-committee SC 205A plays an important role in the standardisation of requirements for Powerline Communication.

In 1988, CEN/TC 247 in turn has published the ENV 13154 Part 2 on Data Communication for HVAC Application Field-Net, protocols to contain then separate BatiBUS, EIB and the EHSA protocol requirements.

As one of the consequences of joining forces in the framework of **Konnex Association**, on the 5th June 2000 a Cooperation Agreement was concluded between **Konnex Association** and CENELEC. By means of this Cooperation Agreement, **Konnex Association**, constituted by manufacturers, service providers and interested parties, achieves a privileged role within the framework of European standardisation. Thereby **Konnex Association** will be able to directly supply to European standardisation, the requirements requested by all groups involved in the economic process in the HBES field such as consumers, crafts, service providers and industry.

Konnex Association has submitted the **KNX** protocol as well as its TP and PL media as a basis for furthering the EN 50090 series.

In June 2003 the national standardisation committees voted positively during the Unique Acceptance Procedure for the following standard parts:

- EN 50090-3-2 corresponding to the **KNX** Application Interface Layer
- EN 50090-4-1 corresponding to the **KNX** Application Layer
- EN 50090-4-2 corresponding to the **KNX** Network, Transport and Link Layer (general part)
- EN 50090-7-1 corresponding to the **KNX** Management Procedures
- EN 50090-5-2 corresponding to the **KNX** TP medium

The following parts are about to be voted or are planned:

- EN 50090-3-x corresponding to the **KNX** Interworking Model (planned)
- EN 50090-5-5 corresponding to the **KNX** Radio Frequency Medium (planned)
- EN 50090-8-x corresponding to the **KNX** Application Descriptions (planned)
- EN 50090-5-1 corresponding to the **KNX** Powerline Medium (in voting)

It is planned to publish the **KNX** Infrared medium as a technical report.

In December 2003, the CENELEC Bureau Technique ratified the positively voted EN 50090 parts.
Result:

**The KNX specifications have become
the first European Standard for intelligent Homes and Buildings.**



Promotes the implementation of the World's first
open STANDARD for Home and Building Control
KNX

Thanks to the coordination between the CEN and CENELEC, it is ensured that as soon as the relevant CENELEC/TC 205 standard is finalised, that CEN/TC247 will make reference to it. An appropriate submission to also endorse the EN 50090 series in ISO circles has in the mean while also been filed.

Members of *Konnex Association*

Status: January 2004

No	Company	Country	Website
1	ABB SACE S.p.A.	Italy	www.it.abb.com
2	ABB STOTZ-KONTAKT GmbH	Germany	www.abb.de/eib
3	Agilent Technologies	Singapore	www.agilent.com
4	Albrecht Jung GmbH & Co. KG	Germany	www.jung.de
5	Altenburger Electronic GmbH	Germany	www.altenburger.de
6	APT GmbH	Germany	www.apr.de
7	AVE SpA	Italy	www.ave.it
8	Berker GmbH & Co. KG	Germany	www.berker.com
9	Bertelli & Partners S.r.l.	Italy	www.bertelli-partners.it
10	Bertoldo & c srl	Italy	www.bertoldo.it
11	Bischoff Elektronik GmbH	Germany	www.bischoff-elektronik.de
12	Bosch & Siemens Hausgeräte GmbH	Germany	www.siemens-hausgeraete.de www.bosch-hausgeraete.com
13	Botech AG	Sweden	www.botech.se
14	Brandt Industries	France	www.elcobrandt.com
15	Bticino SpA	Italy	www.bticino.it
16	Buderus Heiztechnik GmbH	Germany	www.buderus.de
17	Busch-Jaeger Elektro GmbH	Germany	www.busch-jaeger.com
18	CABA, Continental Automated Home & Building Association	Canada	www.caba.org
19	Dätwyler Kabel + Systeme GmbH	Germany	www.daetwyler.de
20	Dehn & Söhne GmbH & Co. KG	Germany	www.dehn.de
21	DELTA DORE S.A.	France	www.deltadore.com
22	Domologic Home Automation Technology	Germany	www.domologic.de
23	DORMA GmbH & Co. KG	Germany	www.dorma.de
24	Easyplug	France	www.easyplug.com
25	Eberle Controls GmbH, an Invensys Company	Germany	www.invensys.com
26	Electrak International Ltd	United Kingdom	www.electrak.co.uk
28	ELECTROLUX Home products Italy S.p.A.	Italy	www.electrolux.com
29	Elero GmbH Antriebstechnik	Germany	www.elero.de
30	Emness Technology AG	Germany	www.emness.com
31	Fagor Electrodomésticos, S. Coop.	Spain	www.fagor.com
32	F. Schlaps & Partner GmbH	Germany	www.schlaps-automation.de
33	Feller AG	Switzerland	www.fellerag.ch
34	GE Grässlin GmbH & Co. KG	Germany	www.graesslin.de
35	Gewiss S.p.A.	Italy	www.gewiss.com



Konnex Association

Promotes the implementation of the World's first
open STANDARD for Home and Building Control
KNX

Members of *Konnex Association*, suite....

No	Company	Country	Website
36	GIRA Giersiepen GmbH & Co. KG	Germany	www.gira.de
37	Gorenje d.d.	Slovenia	www.gorenje.si
38	Griesser Electronic AG	Switzerland	www.multronic.ch
39	Grundig AG	Germany	www.grundig.com
40	Gustav Hensel GmbH & Co. KG	Germany	www.hensel-electric.de
41	HAGER	France	www.hager.com
42	Heinrich Kopp AG	Germany	www.kopp-ag.de
43	Honeywell AG	Germany	www.honeywell.com
44	HTS High Technology Systems AG	Switzerland	www.hts.ch
45	Insta Elektro GmbH & Co. KG	Germany	www.insta.de
46	IPAS GmbH	Germany	www.ipas-gmbh.de
47	JEPAZ Elektronika spol, s.r.o.	Czech Republic	www.jepaz.cz
48	Jnet Systems	Switzerland	www.jnetsystems.com
49	Legrand S.A.	France	www.legrandelectric.com
50	Levy Fils AG	Switzerland	www.levyfiles.com
51	Lexel Finland AB	Finland	www.lxg.com
52	LG Electronics	South Korea	www.glte.com www.lge.com
53	Lingg & Janke OHG	Germany	www.eibshop.de
54	LUXMATE Controls GmbH	Austria	www.luxmate.com
55	MERTEN GmbH & Co. KG	Germany	www.merten.com
56	Miele & Cie GmbH & Co.	Germany	www.miele.de
57	Mingardi Magnetic Srl	Italy	www.mingardimagnetic.com
58	Moeller Gebäudeautomation KG	Austria	www.moeller.net
59	Motorola Ltd	Untited Kingdom	www.motorola.com
60	OAo "Research & Production Association SEM"	Rusia	www.selectm.msk.ru
61	Ritto Werke	Germany	www.ritto.de
62	S. Siedle & Söhne Stiftung & Co.	Germany	www.siedle.de
63	Samsung Electronics Co. Ltd.	South Korea	www.samsungelectronics.com
64	Schneider Electric b.v.	Netherlands	www.schneider-electric.nl
65	SCHNEIDER Electric S.A.	France	www.schneider-electric.com
66	Schupa GmbH	Germany	www.schupa.com
67	SHTRIH-M	Russia	www.shtrih-m.ru
68	SIEMENS AG	Germany	www.ad.siemens.com
69	Siemens Building Technologies Ltd.	Switzerland	www.sibt.com
70	Simon S.A.	Spain	www.simon-sa.es



Konnex Association

Promotes the implementation of the World's first
open STANDARD for Home and Building Control
KNX

Members of Konnex Association, suite....

No	Company	Country	Website
71	SIPRO Srl	Italy	www.sipro-homesystems.com
72	Somfy S.A.	France	www.somfy.com
73	Stiebel Eltron GmbH & Co. KG	Germany	www.stiebel-eltron.com
74	STMicroelectronics	Germany	www.eu.st.com
75	Tapko Technologies GmbH	Germany	www.tapko.de
76	Techem Development GmbH	Germany	www.techem.de
77	Theben AG	Germany	www.theben.de
78	Theodor Heimeier Metallwerk GmbH & Co. KG	Germany	www.heimeier.com
79	Trialog	France	www.trialog.com
80	Trilogie	France	www.trilogie-net.com
81	Viessmann Werke GmbH & Co.	Germany	www.viessmann.com
82	Vimar S.p.A.	Italy	www.vimar.it
83	V-Zug AG	Switzerland	www.v-zug.ch
84	Walther Werke Ferdinand Walther GmbH	Germany	www.walter-werke.de
85	Weinzierl Engineering GmbH	Germany	www.weinzierl.de
86	Whirlpool Europe	Italy	www.whirlpool.com
87	Wieland Electric GmbH	Germany	www.wieland-electric.com
88	WILA Leuchten GmbH	Germany	www.wila.com
89	Wilhelm Huber + Söhne GmbH & Co. KG	Germany	www.rutenbeck.de
90	Wilhelm Rutenbeck GmbH & Co.	Germany	www.rutenbeck.com
91	WindowMaster A/S	Denmark	www.windowmaster.com
92	Winkhaus Sicherheitssysteme GmbH & Co. KG	Germany	www.winkhaus.com
93	Woertz	Switzerland	www.woertz.ch
94	Zumtobel AG	Austria	www.zumtobel.com

Membership of *Konnex Association*?

Categories of members

There are three categories of members as described below:

- **“M”-members**
Companies that envisage to manufacture and distribute certified system components and/or products (i.e. hardware and/or software). Normally called “Manufacturers”
- **“S”-members**
Companies providing services or systems to the end user including the supply of energy, water or communications, and which have a profit-oriented interest in the “Home & Building Electronic Systems” subject of *Konnex Association*. Normally called “Service providers”.
- **“I”-members**
All other groups or individuals with an interest in the “Home & Building Electronic Systems” subject of *Konnex Association*. Normally called “Interested Parties”.

The three categories of members are hereafter referred to by the abbreviations “M”, “S” and “I”

Joining, resignation, expulsion

Potential members shall fill in the application form for membership (see sample included) and forward it to the *Konnex Association's* secretariat (Fax: 0032 2 675 50 28). They shall not forget to state the type of membership and the number of staff members. This application is then forwarded to the members of the Konnex Executive Board (KEB) for approval.

After approval, “M” or “S” members shall enter into the following contracts with the Association:

- IPR License Agreement.
- Trademark License Agreement.

Rights Category “M”- and “S”-members

In short, members in categories “M” and “S” are entitled, among other things, to the following:

- Access to all information generated, circulated and published by *Konnex Association*.
- Access to all services provided by *Konnex Association* – as detailed in the following chapter.
- The right to participate in working groups to define extensions to the “**KNX** Standard”

Insofar as they have already entered into an *IPR License Agreement* and a *Trademark License Agreement* with the Association, members will benefit from the licenses granted there under.

Rights Category “I”-members

In short, Members in category “I” are entitled, among other things, to the following:

- Access to all information generated, circulated and published by **Konnex Association**.
- Limited possibility to make and certify products based on the Bus Standard, i.e.
 - Limited in turnover: only if the overall achieved turnover with products based on the **KNX** Standard does not exceed €150.000,- per annum.
 - Limited in time: for a period of 5 years counted from the date of entry in **Konnex Association**, after which they automatically become “M” or “S” members, unless extension of the I membership with another 5 years is approved by the Konnex Executive Board.

“I”-members never have the possibility to enter into the IPR License Agreement with **Konnex Association**. Consequently, such members can never benefit from the licenses granted there under. However, in the case where such members apply for certification of developed products, they must sign and abide by the rules of the Trademark License Agreement.

If “I”-members do not meet the above requirements and still wish to make products based on the **KNX** Standard, they must change their membership to become a category “M”- or “S”-member.

Member obligations

In short, members have the following obligations, among other things:

- To behave in a manner compatible with the “Mission and Objectives” of **Konnex Association** – as defined in the *Articles of Association*.
- To comply with the product conformity and certification regulations of **Konnex Association** – as in the conformity and certification sections of the **KNX** Specification Handbook.
- To pay the entry fees and annual membership fees in full and in a timely manner.
- In respect of any debts incurred by **Konnex Association**, members shall have limited liability; - that is to say limited to the amount of entry fees and annual membership fees due.
- Insofar as they have already entered into an IPR License Agreement and a Trademark License Agreement with the Association, members must comply with the terms of these agreements.

Services provided to members

As a principle, **Konnex Association** aims at providing all the services currently conducted by the existing three associations (EIBA, BCI, EHSA).

Konnex Association is a non-profit organisation. As such, it is obliged to make a clear separation in its business plan, budget and reporting, between activities that are included within the scope of the membership fees, and other activities that may be provided by other entities. Currently the split is as follows:

- **Included in the membership fees:**
 - Promotion of the Bus Standard
 - Maintenance and development of the Bus Standard
 - The handbook
 - Support to members for the interpretation of the Standard
 - Standardisation activities
 - IPR management
 - Administration
- **Activities provided / sold by other entities:**
 - Tools (development, sales, support)
 - Certification tests for products
 - Executing special contracts for members (on a case by case basis)

The Executive Board may modify the list of activities included in the membership fees; subject to ratification by the General Assembly.

Fees

	One Time Entry Fee *	Annual Member Fee	Annual IPR License Fee	Annual Trademark License Fee	Certification Fee
"S" & "M" Members > 100 Employees	1 x BFU	1 x BFU	Included	Included	n/a
"S" & "M" Members ≤ 100 Employees	0,50 x BFU	0.50 x BFU	Included	Included	
"S" & "M" Members ≤ 25 Employees	0,25 x BFU	0.25 x BFU	Included	Included	
"S" & "M" Members ≤ 10 Employees	0,20 x BFU	0.20 x BFU	Included	Included	
"I" Members	0,16 x BFU	0.16 x BFU			
Member's Subsidiary (Licensee) > 100 Employees			0.25 x BFU	0.5 x BFU	
Member's Subsidiary (Licensee) < 100 Employees			0.125 x BFU	0.25 x BFU	

The BFU (Basic Fee Unit) is fixed at € 12.500 for 2004.

Application form For membership

Name of the company:	
Street:	
Post code – City:	
Country:	
VAT number:	
Category of the company according to the statutes of Konnex Association :	Manufacturer 'M'
Number of employees:	less or equal 10
Name of undersigned:	
Function of undersigned:	
Telephone number:	
Fax number:	
E-mail address:	
Name of the principal representative ¹ :	
Function of the principal representative ¹ :	
Telephone number:	
Fax number:	
E-mail address:	

Herewith submits its application for **full membership** according to the rights and obligations as stipulated in **Konnex Association** aissbl Articles of Association and agrees in particular:

- To pay an **annual contribution** within 30 days after having received the invoice, to permit a balanced operational budget as accepted by the Annual General Assembly of **Konnex Association**.
- The annual contribution has been fixed by the General Assembly 2004:

- for companies larger than 100 employees at	12.500,-	Euro
- for companies from 26 up to 100 employees at	6.250,-	Euro
- for companies from 11 up to 25 employees at	3.750,-	Euro
- for companies up to 10 employees at	2.500,-	Euro
- for interested parties, "I"-member at	2.000,-	Euro
- for sublicensees with more than 100 employees	4.687,50	Euro
- for sublicensees with fewer than 100 employees	2.337,50	Euro
- To pay an **entry fee** in the height of the annual contribution².

Place:

Signature:

Date:

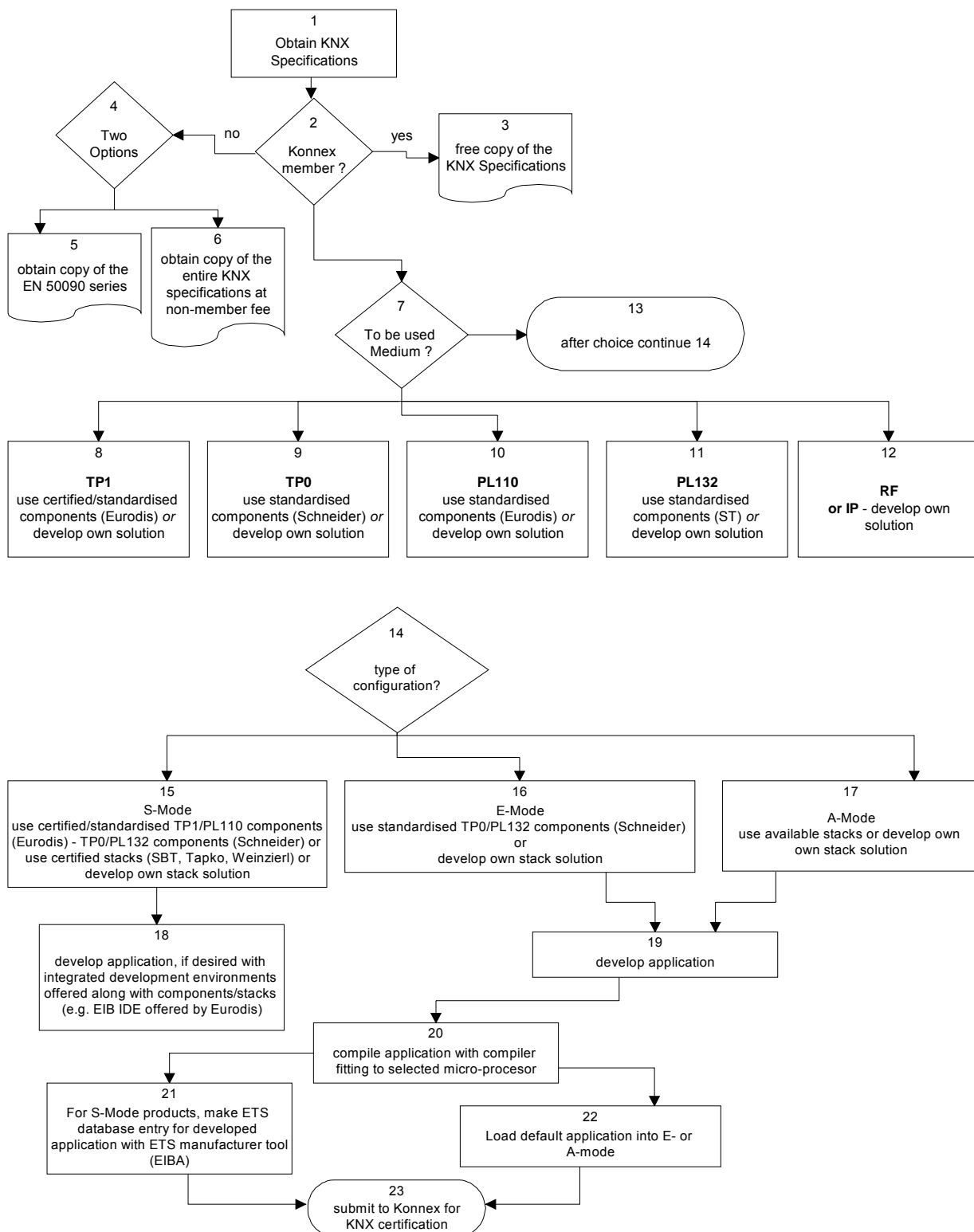
Please return this form by fax and mail to the secretariat of **Konnex Association**, including a company profile and if available a copy of the last annual report

¹ if not the undersigned

² not applicable for members in legacy associations

How to develop a KNX compatible device?

Flowchart:



Useful addresses hardware

If desired) ready-to-use **KNX** system components (BIM modules) and/or chipsets available for the following media:

- TP₁ and PL₁₁₀ Medium via European distributor Eurodis Enatechnik. Also offered by this distributor are appropriate development tools.
Mr. Claassen, Pascalkehre 1, D-25451 Quickborn, Germany, Tel +49 4106 701-469, Fax +49 4106 701-74163, e-mail: ClaassenW@EURODIS.com.
- TP₀ Medium via Schneider Electric, Mr. Teyssier, S2K plant, avenue des Jeux Olympiques, Grenoble, F-3850 Grenoble Cedex 9. Tel : +33 4 76 39 42, Fax +33 4 76 39 41 92 e-mail: charles_teyssier@mail.schneider.fr
- PL₁₃₂ Medium via STMicroelectronics. Mr. U. Fiedler, Technical Marketing Manager, Werner-von-Siemens-Ring 3-5, D-86530 Grasbrunn, Tel +49 89 46006-2207, Fax +49 89 46006-7-2207, e-mail: ulrich.fiedler@st.com

Useful addresses software

Certified Stacks "S"-mode:

- Siemens Building Technologies, Mr. N. Stroick, Europadamm 2-6, D-41460 Neuss, Tel +49 2131 1599-542, Fax +49 2131 1599-555, e-mail: norbert.stroick@siemens.com.
- TAPKO Technologies GmbH, Mr. Klaus Adler, Yorckstr. 22, D-93049 Regensburg, Tel: +49 941 / 30747-0, Fax: +49 941 / 30747-29, e-mail: klaus.adler@tapko.de.
- Weinzierl Engineering, Mr. Weinzierl, Bahnhofstrasse 6, D-84558 Tyrlaching, Tel +49 8623 987 98 03, Fax +49 8623 987 98 09, e-mail: t.weinzierl@weinzierl.de.

ETS manufacturer tool:

- EIBA srl, Mrs. Degol, Bessenveldstraat 5, B-1831 Diegem, Tel +32 2 775 86 54, Fax +32 2 675 50 28, e-mail: c.degol@eiba.com.

Certification procedure for products

In order to establish the **KNX** Trademark as a token for quality and interoperability of home and building system engineering products (based on the **KNX** protocol), **Konnex Association** has launched its certification scheme for products.

A member of **Konnex Association** will have to prove compliance to the following requirements, if it wants to label a developed **KNX** product with the **KNX** trademark:

- Implementation of a quality system according at least ISO 9001
- Requirements of the European standard EN 50090-2-2 (covering such aspects as EMC, electrical safety, environmental conditions, of bus products) and an appropriate product standard. Compliance can be shown to **Konnex Association** by the submission of a CE declaration.
- Requirements of Volume 3 and Volume 6 of the **KNX** specifications, the former being a toolbox of the **KNX** protocol features, the latter listing the allowed profiles of the **KNX** stack based on the toolbox as mentioned before.
- **KNX** Interworking requirements as regards standardised data types and (optionally) agreed functional blocks.

For registration (entry of the product data in the central database of the ETS software tool for project design and commissioning) and certification, the applicant will have to contact **Konnex Association's** certification department.

In order to allow a speedy market entrance, products can be branded with the **KNX** trademark after registration. After that, the applicant has a maximum of 6 months to complete the testing of his products.

For software testing, the applicant will have the choice of a number of **KNX** accredited test labs, authorised to carry out third party **KNX** system and interworking testing. For hardware testing, the applicant either has the various testing facilities at his premises or takes recourse to a test lab of his choice.

During software testing, emphasis is put on testing of uncertified parts only. As an example, a product based on an already tested **KNX** bus access unit (of which compliance to the system specifications has already been proven) must merely be submitted to the interworking tests.

A uniform test tool ensures that the manufacturer is able to prepare much of the software test campaign at his premises and provide this preparation as input for third party testing.

As soon as our certification department has received all test reports as regards system and interworking conformity together with the CE declaration for the hardware, a certificate is issued confirming the use of the trademark on the tested product.

Main fees for product certification

- | | | |
|----|--|---------|
| 1. | Registration of hardware, developed by the applicant | € 600,- |
| 2. | Registration of software, developed by the applicant | € 180,- |
| 3. | Registration derived hardware | € 180,- |
| 4. | Registration derived software | € 60,- |
| 5. | Annual product surveillance fee for certified hard- and software combination, developed by the applicant | € 75,- |

Accreditation of test laboratories

In order to have **Konnex Association** accept test reports as a basis for **KNX** certification, the laboratory issuing such reports will have to pass successfully the **KNX** accreditation.

If not accredited nationally, the test lab will have to additionally pass an audit carried out by the **KNX** Audit Team to show compliance to the ISO 17025 standard.

If nationally accredited, the **KNX** audit will be limited to assessing the aptitude of the candidate test lab to carry out **KNX** conformity testing. This will be done on the basis of a sample test campaign prepared by the candidate test lab.

The cost of the above audit including travel and hotel expenses will be invoiced to the applicant.

For more detailed information, please contact **Konnex Association's** certification department.

Certification of training centres

The basics of the Certification Scheme for training centres are fourfold:

- ensuring quality in training services through a number of guidelines or compliance to ISO 900x;
- ensuring a guaranteed level of knowledge of the trainee through uniform training documentation and examination. Three types of courses have been standardised:
 - combined course,
 - upgrade/professional course
 - tutor course;
- ensuring proper training of tutors through tutor courses (in Germany held at bfe, Dial or Siemens – for non-German speaking tutors via self-training, crash course and examination by **Konnex Association**)
- ensuring proper training equipment at all certified training centres

The training centre certificate gives you the following advantages:

- ETS Licenses: 1/3 of normal price
- right to hand out certificate after positive test (combined course) or sufficient attendance (upgrade course)
- right to hand out ETS vouchers after positive test (combined course)
- access to standardised training documentation in electronic form
- possibility to buy standardised training documentation on paper for € 21,- per unit.

If your training centre has implemented a quality system according to ISO 9001/2, we will lower the price of the ETS Licenses to 1/4 of normal price instead of 1/3.

Possibilities for non-certified training centres:

- possibility to purchase paper copies of the **KNX** training documentation to prepare pupils for an EIB exam at a certified training centre:
 - € 59,- per copy for non-vocational training centres
 - € 29,- per copy for vocational training centres
- Price for ETS Licenses and promotional material: 1/2 of normal price

Certification costs for training centres:

- Registration: € 1.200,-
- Inspection fees: € 900,- per man-day
(without living allowance and hotel/travel expenses)
- Annual fees: € 500,-

Ordering ETS^{TM®}

To order ETS^{TM®}, please print out the order form (double sided) corresponding to the language version of which you would like to obtain a license. Fill in the complete order form, sign it and send it back by normal mail, fax or email (in this case document scanning is valid) to the EIBTM (contact information below).

Forms are in PDF Acrobat format; you can download them [here](#).

For more information on ETS, please contact EIB; Mrs. Chantal Degol, Bessenveldstraat 5, B-1831 Brussels-Diegem, Belgium. Tel: +32 2 775 86 54, Fax: + 32 2 775 86 50 E-mail: sales@eiba.com

Konnex scientific partnership forum

The purpose of this forum is to establish communication and mutual information amongst universities, institutes of technology and/or research bodies and members of **Konnex Association** in order:

- to channel **KNX** information from **Konnex Association** and its members to the scientific partners. and information on pertinent educative and research initiatives from the partners to **Konnex Association** and its members.
- to support and enhance the relevant training and education of students.
- to organise and manage conferences and/or workshops as an important part of the communication means for this Forum.
- to guarantee the appropriate protection of exchanged know-how as well as the protection of the **KNX** trademark and the integrity of the **KNX** Certification System.

This Forum will enable **Konnex Association** and its members to support **KNX** research and education. **Konnex Association** will organise, every 2 years, within this Forum the **KNX** Award for the best **KNX** Thesis, to support the promotion of excellence.

For an annual fee of € 250,- the Konnex scientific partner may expect:

- a CD-ROM at the beginning of each year, containing the current version of all available **KNX** software packages and the entire set of **KNX** documentation.
- access to an FTP server, from which versions of the documentation and tools can be downloaded.
- one free entrance to the annual scientific conference.
- access to the **KNX** technical hotline for any question related to ongoing **KNX** projects.
- the usage of the Konnex scientific partnership logo for his own purposes.

Contact

For more information feel free to contact us:

Harry Crijns, Marketing director

Konnex Association

Bessenveldstraat 5
B - 1831 Brussels-Diegem

Tel: +32 (0) 2 775 85 90
Fax: +32 (0) 2 675 50 28
E-mail: harry.crijns@konnex.org
Web: www.konnex.org