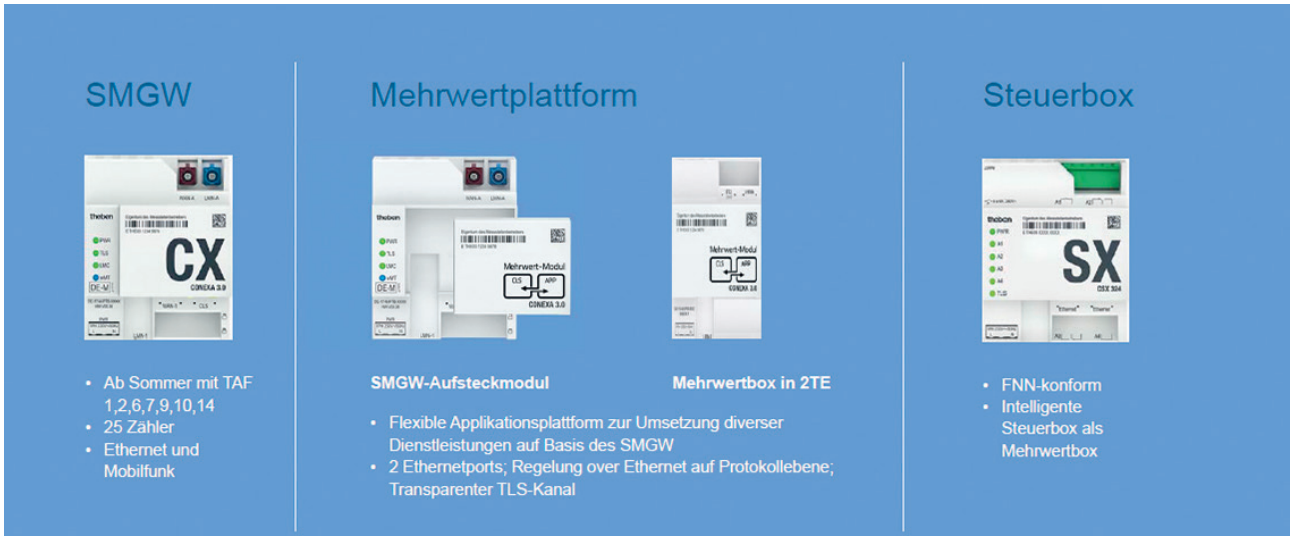
SMGW and KNX – The standardised path to a secure future

The SMGW, the value-added module and the control box from Theben ensure a seamless transition from the BSI-certified secure infrastructure into the KNX building.

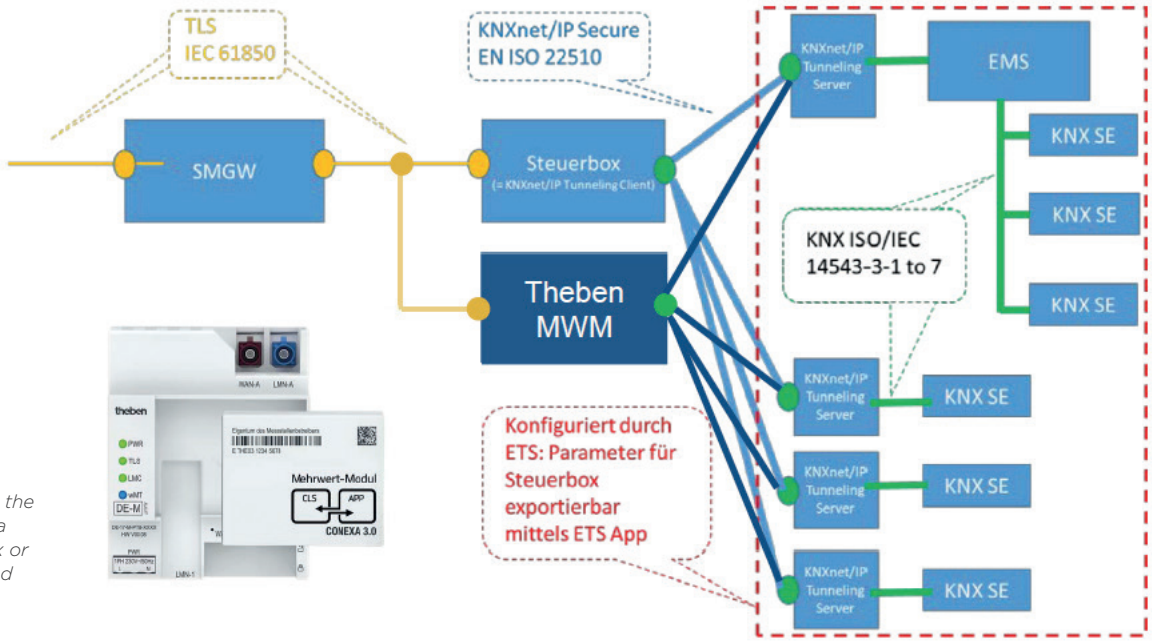
Security is essential for the smart home. The idea that suddenly the control of the blinds could be taken over by a hacker for fun, or even that the heating could be destroyed by a cyber attack, would be the nightmare of every homeowner.
Therefore, a secure communication infrastructure must be established. Advancing the secure digital infrastructure for the energy, climate and transport transition was also a concern of the Federal Government, which has drawn up a roadmap for this purpose.
Implementation means: new loads from energy generation and sector coupling must be controlled and managed. The goal is to make the network conditions transparent. „And down to the low-voltage level, where we are still largely blind today“, says Ruwel Konzelmann, Head of Business Unit Smart Energy, from Theben. This is the only way to increase efficiency potential and avoid wasting energy and resources.
That alone is no small challenge from a technical point of view. But even if everything would work and interact wonderfully - without making sure that all levels are protected as well as possible from hackers and cyber attacks, the whole system cannot work. After all, smart home residents must feel - and indeed be - just as secure as the energy suppliers and grid operators, for whom it would also be a nightmare if hackers were able to gain access to the grids through the back door of the smart home and the smart meter gateway and literally switch off the lights in entire cities. Moreover, new business models and new services

Ruwel Konzelmann

can only be set up on the basis of a secure communication infrastructure.
This requires secure smart meters and smart meter gateways. We are not talking about a few thousand devices: „According to the BMWi, it is expected that there will be 15 million installations in Germany by 2030, i.e. 15 million nodes in which the smart meter gateway will be the security anchor in an application, to a facility or to the building in order to securely exchange, control, manage and regulate data“, says Ruwel Konzelmann.
Theben has developed a product platform for this purpose, at the centre of which is the smart meter gateway (SMGW) of the „CONEXA 3.0“ type. „The SMGW was a big



The product platform for the digital energy transition from Theben: The SMGW, the value-added module and the control box.



In this way, the SMGW can be integrated into the KNX system via the control box or the value-added module from Theben.

challenge and still is in parts - with many new elements for the company. We were allowed to learn to work with safe state-of-the-art technology", says Ruwel Konzelman. The SMGW now makes it possible to work within the secure communication infrastructure with measuring devices in the areas of electricity, water and heat. This allows measurement data to be collected so that the energy supplier can monitor and bill. Or to safely transfer the data to third party systems such as KNX energy management and the KNX building itself for further processing.

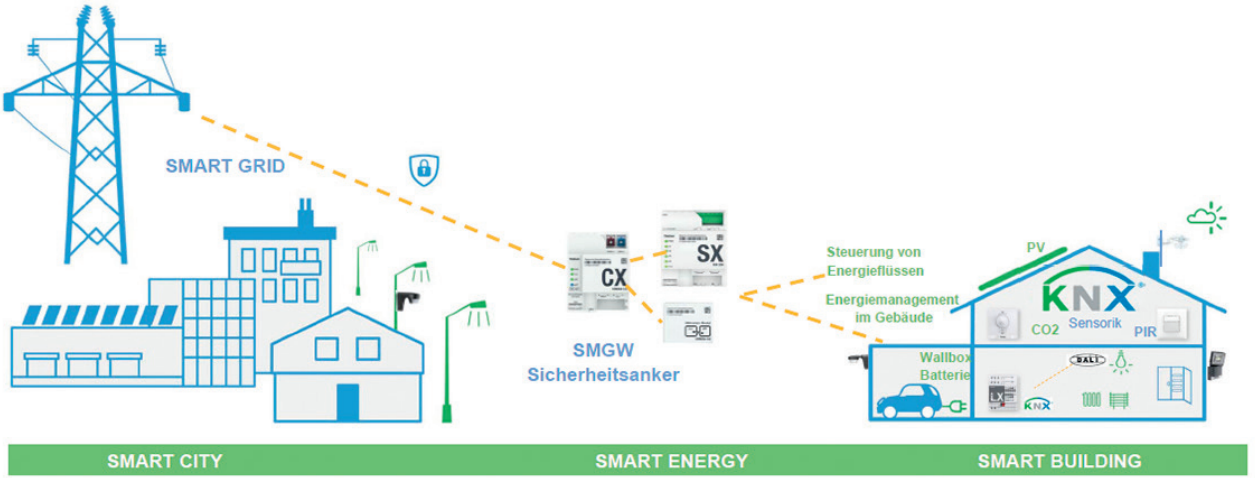
To ensure a smooth transition from the SMGW to the KNX world, Theben has developed the value-added module, which is simply plugged onto the SMGW. The module is a microprocessor memory platform that provides very simple and standardised access to third-party systems such as KNX.

The third element of the platform is the control box, which is additionally equipped with relays and is connected to the KNX system via the SMGW so that the KNX energy management can control the KNX building. This works with and without the energy management system. „In the future, it will also be possible to parameterise it via ETS, but we have not yet finalised the definition", explains Konzelmann. For this purpose, an app is created to export the data from the control box.

With this, Theben has demonstrated a secure and standardised way, so that KNX energy management is integrated into the larger and important secure communication infrastructure. „And complete and standardised, a very important element of KNX's success over the past decades", Konzelmann emphasises. „You can't build a secure infrastructure without standardisation."

This leads him to the equation „SMGW + KNX = future-proof". Because the BSI-certified SMGW works in the secure area - interoperably and with standardised structures - which can then be used in the standardised KNX world. „Another step for the success of the energy and transport transition - even the climate transition", summarises Ruwen Konzelmann.

Ruwen Konzelmann, Head of Business Unit Smart Energy: „Theben shows the secure and standardised way to integrate KNX energy management into the larger and important secure communication infrastructure based on BSI-certified SMGWs."



The whole picture in context: from the Smart Grid via the SMGW security anchor for access into the building via the FNN standardised control box and the value-added module from Theben. There, active power limitations and monitoring as well as active power monitoring at the entry point can be carried out, again standardised by using the KNX function blocks.