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

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KNX IoT Devices Overview & Innovations

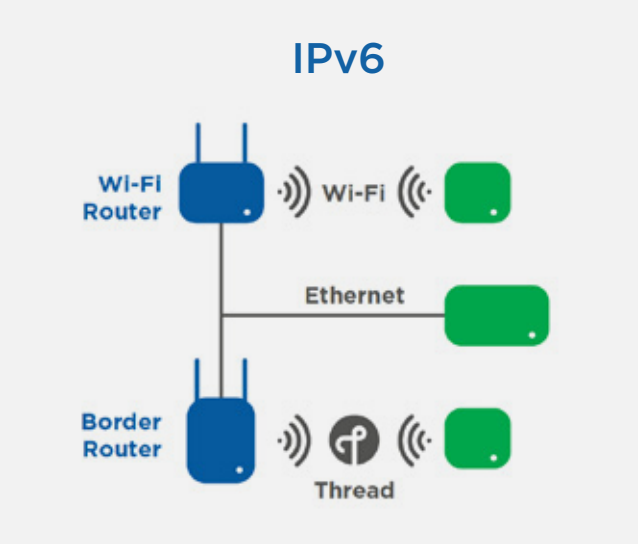
Engineered with KNX IoTech

KNX IoT Device by **Siemens AG**
KNX IoT Device by **Passiv Energie Austria GmbH**
KNX IoT System Component by **Cascoda**

KNX IoT SOLUTIONS

Why KNX IoT

While KNX has been capable of using IP networks to communicate (between devices or between servers and clients) thanks to the KNXnet/IP protocol, KNX IoT qualitatively increases the interoperability at the IP level thanks to IPv6. It also becomes software development-friendly and adds new physical/network layers demanded by the market (e.g. THREAD) to the existing ones (Wi-Fi, Ethernet). Thanks to KNX IoT, all the stakeholders involved in the product lifecycle (manufacturers, developers, system integrators) enjoy an enhanced approach to manufacturing, development, and integration.



KNX IoT: interoperable & secure landscape

Please proofread: KNX has been the reference when talking about interoperability. Just grab any two certified devices from any vendor, and they will simply work together at the application level in a secure way. Following this philosophy, KNX IoT has been designed to maintain the highest level of security. KNX IoT Point API devices come with security embedded by design. With this robust and comprehensive development landscape, manufacturers and developers can build the best devices, solutions, and services in the home and building automation market.

One tool: ETS

All of these capabilities are made possible through the use of ETS. With ETS, KNX devices from over 500 manufacturers can be configured independently of their physical layer, and project information can be exported to any KNX IoT API Server using a vendor-independent tool. More than 100,000 installers have been trained to use ETS. While other technologies lack application-level interoperability and require numerous software tools to configure an entire installation, ETS provides core interoperability in an attractive tool with a modern user interface.

KNX IoT TECHNOLOGY HIGHLIGHTS

What makes KNX IoT so interesting for your business?

Open Source stack

For the first time in its more than 30-year of history, the KNX Association has made an open-source stack available to develop KNX IoT devices. This is a giant step towards democratizing the adoption of the best interoperability in the industry, based on IPv6

THREAD modules

TP and RF have already laid the foundation for successful business cases, but our past achievements do not leave us complacent. A new IPv6 communication network is now added to the vast KNX development landscape. There are modules available, based on THREAD, to develop KNX IoT devices.

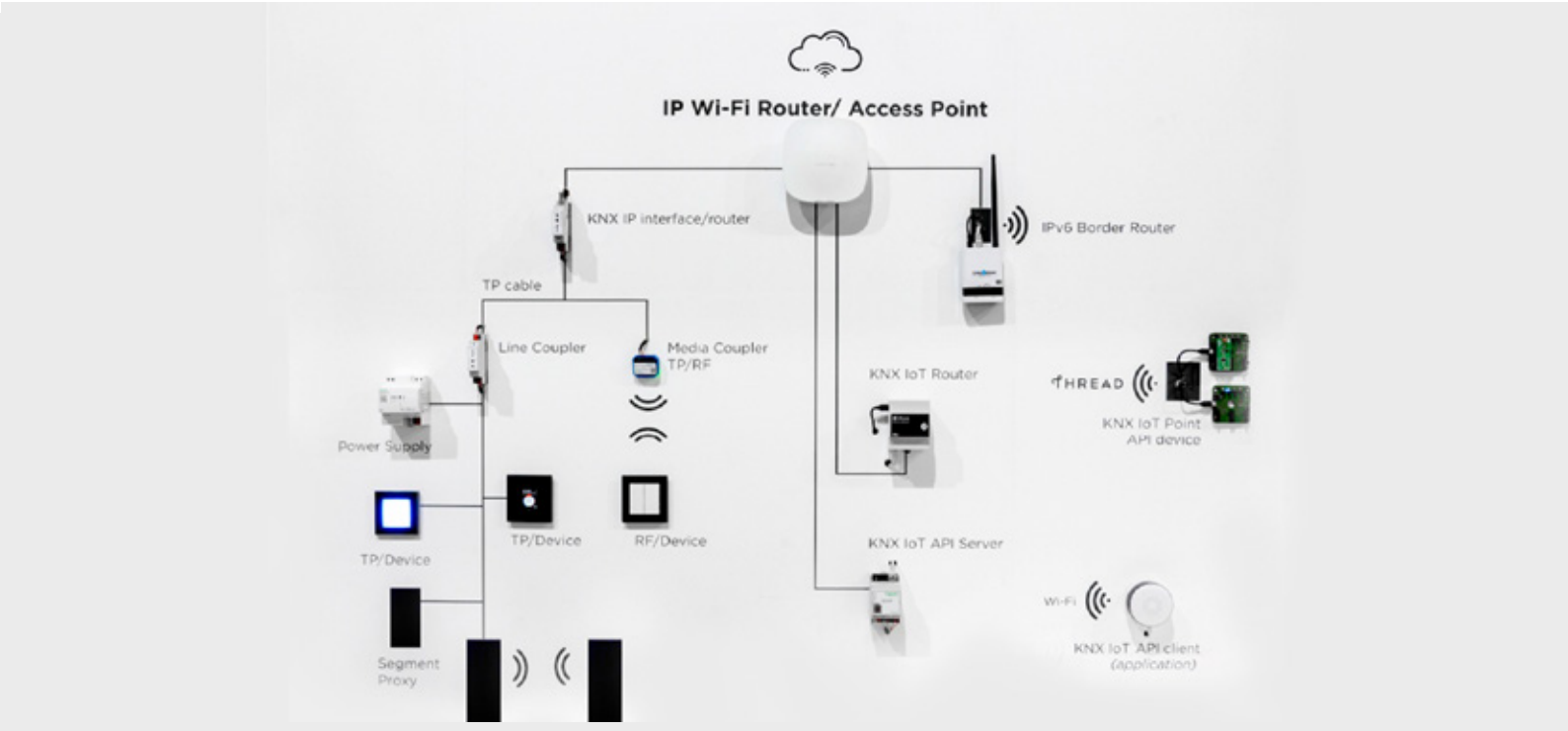
CoAP

Strong protocols

A new communication/message protocol using **CoAP** and **CBOR** has been optimized for resource constrained communications. OSCORE is utilized to encrypt all types of messages end-to-end between endpoints. Leveraging these protocols and solutions, KNX grows on the shoulder of giants while maintaining its unique identity and added value.

KNX, the largest development landscape of its kind

A **groundbreaking development** platform that serves as the foundation for remarkable solutions has been presented to the world in 2023, enabling all business cases in the smart home and building verticals. From single products to services, any manufacturer or developer can find the necessary resources to create unique solutions.



KNX IoT DEVICE

COMPANY

SIEMENS

Siemens AG is a KNX Member since 1990.

Device description

Introducing the latest product from Siemens, the Room Sensor, designed for ventilation and air conditioning plants. This battery-powered sensor, available in QAA2890/WI, QFA2890/WI, and QPA2892/WI models, provides accurate readings of temperature, relative humidity, and CO2 concentrations. With temperature accuracy at ±0.3 K@21...25°C, ±0.7 K@15...21 °C/25...35 °C, and ±1 K@0...15 °C/35...50 °C, and relative humidity accuracy at ±2 % r.h.@30...70 % r.h. and ±5 % r.h.@0...30 % r.h./70...100 % r.h., you can rely on its precise measurements. The CO2 accuracy is 350 ppm /2 % m.v. @0...2000 ppm, and the sensor also features automatic baseline calibration (ABC) for CO2 measurement. Using wireless communication KNX IoT over Thread, the sensor seamlessly exchanges sensor data with controllers and tools over a wireless Thread network, making it an efficient and reliable addition to any ventilation and air conditioning plant.

Application

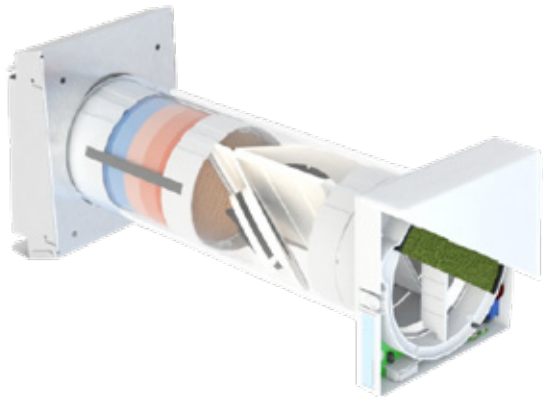
Indoor Air Quality (IAQ) is a crucial factor for the health, comfort, and productivity of occupants in buildings and homes. IAQ can be affected by various factors, including temperature, humidity, and the concentration of pollutants such as CO2. Proper control and management of these factors can contribute to a healthier and more comfortable indoor environment. Temperature and humidity levels that are too high or too low can cause discomfort, health issues, and decreased productivity. High levels of CO2 can also cause drowsiness, headaches, and decreased concentration, which can affect productivity and performance. Moreover, high concentrations of CO2 may indicate inadequate ventilation, which can lead to the buildup of other pollutants. Therefore, it is important to monitor and control indoor environmental factors such as temperature, humidity, and CO2 to ensure a healthy and comfortable indoor environment. This can be achieved through proper ventilation, air filtration, and the use of sensors and controls that allow for real-time monitoring and adjustments to be made.

KNX IoT DEVICE

COMPANY

PASSIV ENERGIE

Passiv Energie Austria GmbH is a KNX Startup since 2022



Device description

The Heating Recovery Ventilation system is a state-of-the-art device designed to deliver the highest level of comfort and air quality for homes and buildings. With the HRV-unit on/off feature, users can easily control the system and customize the ventilation level according to their needs. The fan speed can be set from step 1 to 4, while the co2 measurement, temperature measurement, and humidity measurement provide accurate readings for maintaining indoor air quality. The system also includes a Dumper on/off feature and a standard supply air device/exhaust air device to define the original operation direction of the fan unit. With the Heat Recovery/Night Purge Mode operation mode, the system ensures efficient heat recovery and air purification during night-time. Other notable features of the Heating Recovery Ventilation system include the Filter Exchange/Cleaning reminder, CO2-Control On/Off, Humidity Control On/Off, alternating period time, direction of operation (Supply Air/ Exhaust Air), attached room name, Bath Room Mode On/Off, and Open Jiminy Operation to increase indoor pressure and prevent smoke backflow. The Sleep Mode On/Off feature also reduces noise pollution in bedrooms by turning off the fans for one hour before turning them back on again. The Heating Recovery Ventilation system provides a safe and efficient solution for homes and buildings to maintain healthy indoor air quality.

Application

Heat Recovery Ventilation (HRV) is a solution that is gaining popularity due to the increasing demand for indoor environmental quality. Certifications like LEED or Passivhaus have brought attention to the importance of providing healthy ventilation in homes and buildings, as it is also critical in preventing moisture issues inside the dwellings. HRV systems have become increasingly important over the years as part of HVAC solutions, and they benefit from being integrated into the home and building automation system, with CO2, humidity, and temperature measurements.

KNX IoT MODULES

COMPANY

Cascoda is a KNX Member since 2021

Device description

The **Chili2 SMARTRange™ module** family is a **fully-featured Thread-based** wireless solution for IEEE 802.15.4 communications in the 2.4GHz band. The Chili2 pairs the **Cascoda CA-8211 transceiver modem** with an **ARM® Cortex®-M23 TrustZone®** microcontroller. The Chili2 module provides developers with **system design advantages:**

- Best-in-class **RF performance** with **-105dBm receive sensitivity, +9 dBm transmit power** and a **+114 dB link budget:**
  Allowing **whole-house coverage** in **any market on the planet,** with **no need for a power amplifier.**
  World-class energy consumption, in all modes
- **Highly secure** PSA Certified™ ARM Cortex-M23 **TrustZone** architecture, running up to 64MHz
- **Highly reliable** and **scalable** IP-based mesh network using Thread

Application

Development of KNX IoT devices, which communicate over THREAD. The Chili2D is a double-sided stand-alone module, intended as a development platform. It features a voltage regulator, a Li/Li-Po battery charger, a micro-USB socket and a 10-pin 0.05 ARM-JTAG connector. Power can be provided through USB, 5V or 3V headers, the ARM-JTAG connector, a rechargeable Li/Li-Po battery, a non-rechargeable battery or a variety of energy-harvesting sources.
The Chili2S is a single-sided postage-stamp module, intended as a production platform. This is designed to be soldered to an application board, which will supply power and interfacing.

Companies involved in this brochure

COMPANY	COUNTRY	WEBSITE
Siemens AG	Germany	www.siemens.com/knx
Passiv Energie Austria GmbH	Austria	https://passiv-energie.at/
Cascoda	United Kingdom	https://www.cascoda.com

References

KNX IoT Development (**link**)
KNX IoT Open Source (**link**)

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