



Air quality control from Theben

Fresh air helps students concentrate

No matter what you are doing you can concentrate properly when the air is stuffy. The right atmosphere is essential to study in. The AMUN 716 KNX air quality sensor enables just that.

The AMUN 716 KNX monitors the rooms temperature, humidity and CO₂ levels. Once it is configured it will automatically ensure the optimum air quality whilst keeping energy consumption to a minimum. That way everyone can benefit from clean air and a comfortable environment to work in.

Educationally valuable: temperature control with CO₂ measurement



A KNX installation only makes real sense if it is used for building automation across rooms. For instance, for temperature control in six classrooms. Theben's solution consists of a weather forecast receiver, a time switch, as well as heating actuators and room air sensors.

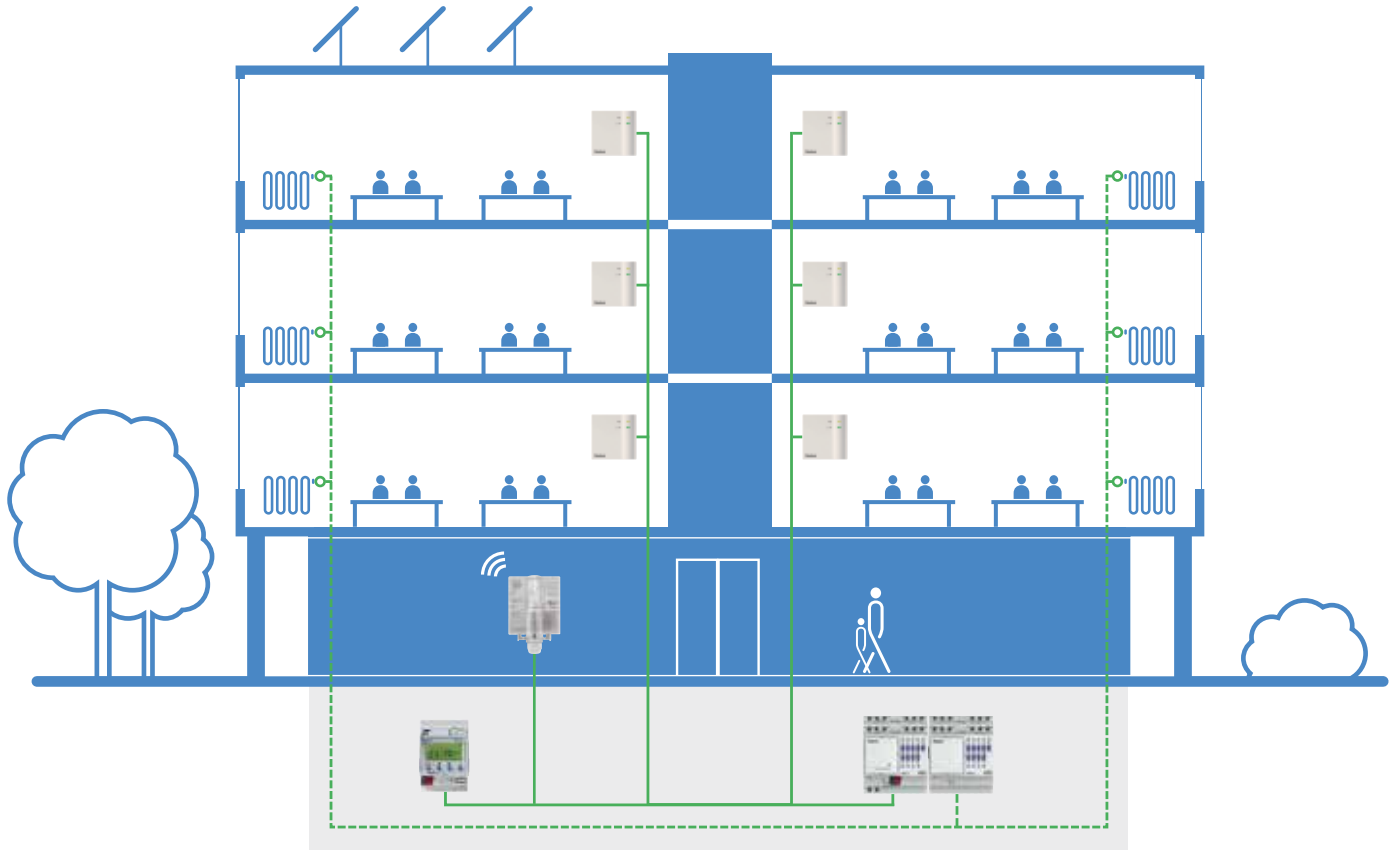
Meteodata 139 KNX* provides reliable weather forecasts for the next three days. These data are fed into the KNX bus in 6 hour blocks via telegram. In the classrooms, the CO₂ sensor AMUN 716 KNX measures the room temperature, the relative humidity, as well as the CO₂ content of the air. The heating actuator controls the heating in accordance with indoor and outdoor temperature.

Under mild weather conditions, the system changes to summer mode, and lowers the energy consumption. If a window is opened, the frost protection mode is started. Comfort mode is activated by pressing the presence button. In each situation, the students inside the classrooms enjoy constantly pleasant temperatures. Additionally, the room sensor indicates the air quality via CO₂ measurement, and when it is time to air the room again. The heating control can be controlled via multifunction display VARIA 826 S KNX, or theServa. The system can be extended to up to twelve rooms.

350	1.000	4.000	5.000	50.000	100.000	200.000
Outside air	Sense of poor air quality	Badly ventilated room	Occupational exposure limit (OEL)	Human exhalation rate	Extinction of a candle flame	Fatal danger

The AMUN 716 KNX CO₂ room air sensor also measures air humidity and temperature, apart from the CO₂ concentration in the range of 0–9999 ppm.

Theben KNX room climate control considers temperature, air quality, and energy consumption



Benefits at a glance

1. Less devices, less installation effort

- The HMG 6 T KNX heating actuator features an independent and fully-fledged room thermostat for each channel. The room temperature is transmitted by the corresponding CO₂ sensor AMUN 716 KNX from the individual rooms to the heating actuator. This reduces equipment costs, since a separate room thermostat is not needed for each room.

2. Controlling sun protection with foresight, optimising energy consumption

- By taking the weather forecast of Meteodata 139 KNX* into account, an overheating of rooms due to solar radiation can be avoided, by a foresightful use of the shades. Inversely, a solar heat gain can be achieved by moving the hangings up early in these rooms.
- Also the energy demand for domestic hot water can be optimised by using weather forecasts.



Heating actuator HMG 6 T KNX variably controls heat and cold

This MIX2 base module has integrated heating controllers for controlling six thermal actuators. It is expandable by up to two extension modules to up to 18 channels. The control of the actuators is done via silent and wear resistant Triac semiconductor switches. Continuous or switching actuating values are selectable. Temperature control is done in accordance with the indoor and outdoor temperature, according to the comfort, night, frost or heating protection modes. If you do not only control the heating: It can be combined with all extension modules of the MIX2 series.



Weather forecast receiver Meteodata 139 KNX* predicts what the weather will be like

The weather forecast receiver considerably contributes to minimise heating costs, to use sunshine and heat effectively, and to control the sun protection with foresight. From HKW, it receives licenced weather forecasts for the next three days via long wave. In this way, Meteodata 139 KNX* can tell whether the weather will be "fine", "cloudy", "rainy", or "stormy". Via telegram, the receiver sends the data to the corresponding KNX actuators, which – depending on the weather – control blinds, lighting, or, as in this case, the heating with foresight.



Room air sensor AMUN 716 KNX exactly detects air quality, exactly

The CO₂ room air sensor monitors the air quality, and signals or responds appropriately to critical room conditions. It has three independent, configurable thresholds for CO₂ concentration, humidity, and for temperature. If a threshold is exceeded or fallen below, the device shows the respective state or sends a signal to the heating actuator. The AMUN 716 KNX is supplied by the bus voltage. A power supply is not necessary.



Time switch TR 648 top2 RC KNX switches correctly, automatically

The digital time switch has GPS positioning, as well as a yearly and Astro program for automatic calculation of sunrise and sunset times over the entire course of the year. Summer/winter change over, holiday – no problem: This time switch has everything under control with its numerous yearly functions, and it synchronises itself with the other bus sharing units around the clock. So the right things happen always at exactly the right time.

Project example

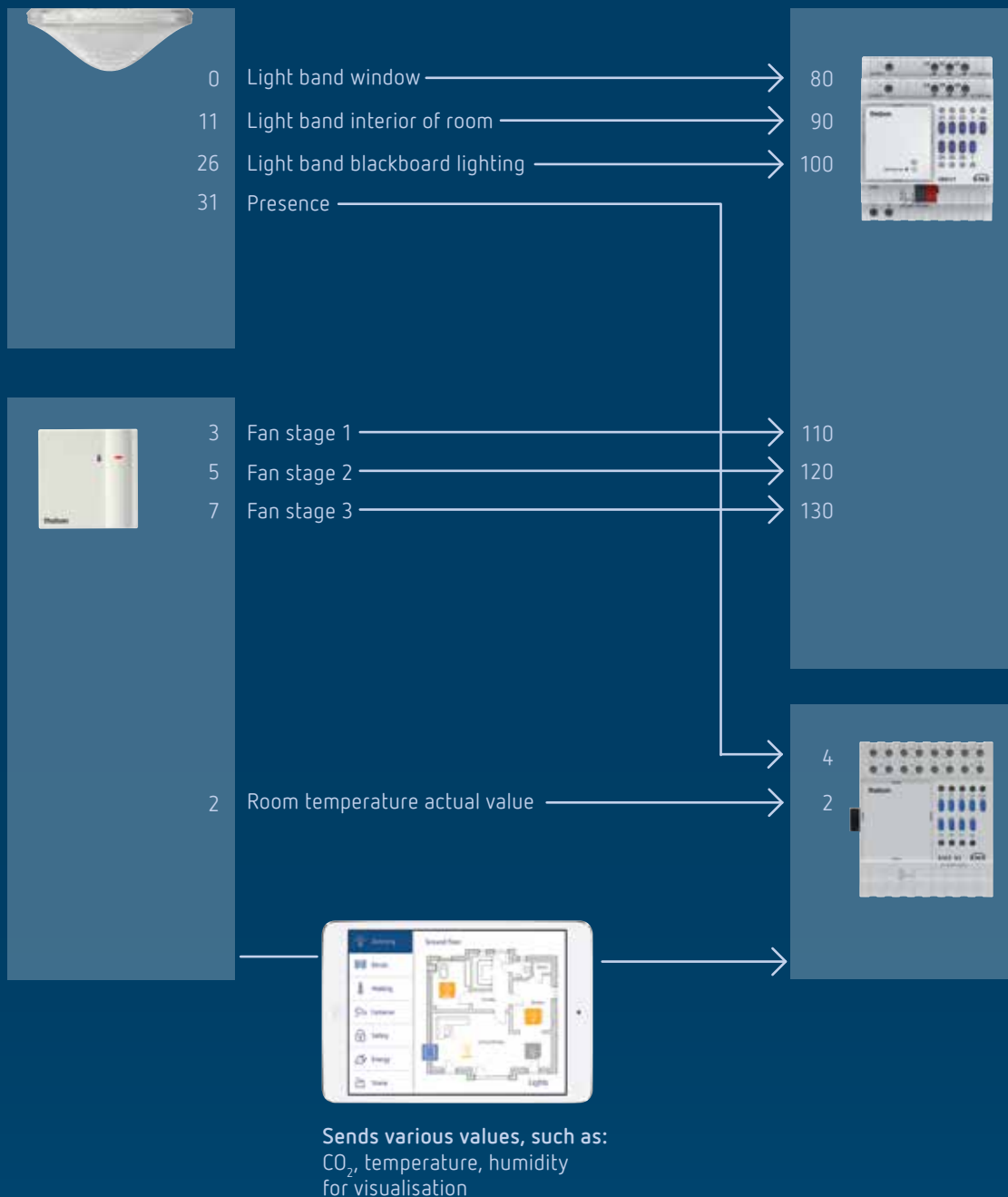
Presence-dependent climate control with CO₂ sensors

CO ₂ sensor AMUN 716 KNX object name	Heating actuator HMG 6 T KNX object name	Notes
2 Temperature value	2 Channel H1 - actual value	Reports the current room temperature for the control

CO ₂ sensor AMUN 716 KNX object name	Switch actuator RME 8 S KNX object name	Notes
3 CO ₂ threshold 1 - switching	110 EM1 RME 8 S KNX channel C4 - switch object	First fan stage
5 CO ₂ threshold 2 - switching	120 EM1 RME 8 S KNX channel C5 - switch object	Second fan stage
7 CO ₂ threshold 3 - switching	130 EM1 RME 8 S KNX channel C6 - switch object	Third fan stage

Presence detector thePrema P KNX object name	Switch actuator RME 8 S KNX object name	Notes
0 Lighting channel C1	80 EM1 RME 8 S KNX channel C1 - switch object	Switching light band window side
11 Lighting channel C2	90 EM1 RME 8 S KNX channel C2 - switch object	Switching light band interior of room
26 Lighting channel C3	100 EM1 RME 8 S KNX channel C3 - switch object	Switching light band blackboard lighting

Presence detector thePrema P KNX object name	Heating actuator HMG 6 T KNX object name	Notes
31 Presence channel C4.1 - switching	4 Presence	Reports whether the room is currently occupied or not



You can download the preconfigured project as knxproj. file at this link: theben.de/ets04-en