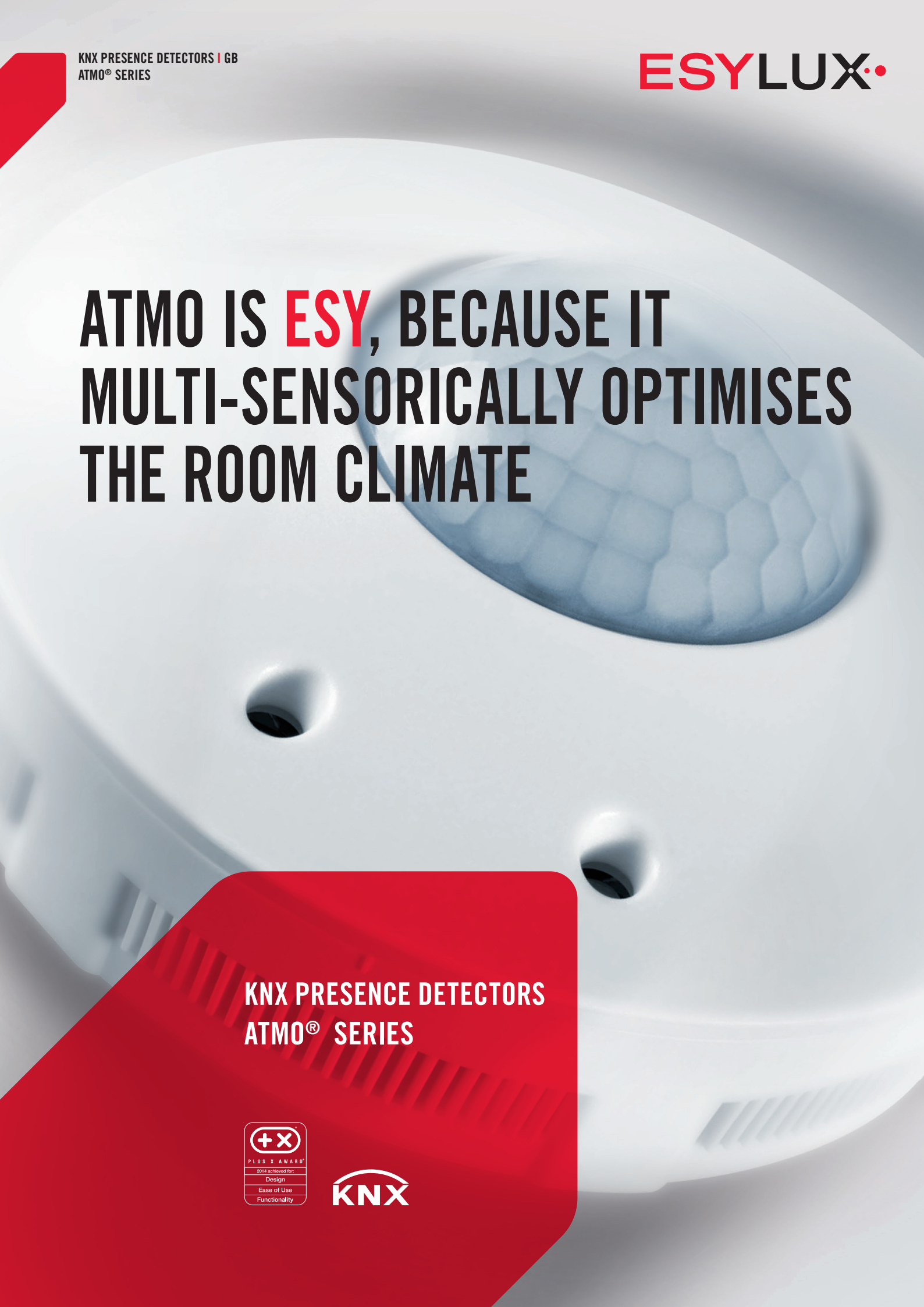
ESYLUX

ATMO IS ESY, BECAUSE IT MULTI-SENSORICALLY OPTIMISES THE ROOM CLIMATE



KNX PRESENCE DETECTORS
ATMO® SERIES

PLUS X AWARD®
2014 achieved for:
Design
Ease of Use
Functionality

KNX

COMPACT MULTI-SENSOR

FOR ENERGY-EFFICIENT OPTIMISATION OF INDOOR CLIMATE AND LIGHTING

PLUS X AWARD®
2014 achieved for:
Design

PLUS X AWARD®
2014 achieved for:
Ease of Use

PLUS X AWARD®
2014 achieved for:
Functionality

As an innovation driver for intelligent sensor technology, ESYLUX is taking the world of KNX systems to a new level of performance with its unique new solution for cross-system control, the ATMO® presence detector. Its multi-sensor system detects not only the presence of humans and the lighting situation; at the highest configuration level, it also registers changes in humidity, temperature and air quality.

A total of six sensors in a single device enable it to automatically adjust lighting to the optimum brightness, and provide a healthy and productive ambient climate at every workstation – all while maximising energy efficiency. In this way, the ATMO® presence detector removes the need for multiple individual solutions and is perfect proof of how easy it is to meet the requirements of a complex situation using intelligent technology.

TRAINING KNX

WE'RE A MEMBER

As a member of the KNX Association, ESYLUX produces KNX-certified products and is also a certified KNX training centre, thus making an active contribution to further educating its customers. ESYLUX also benefits from the expertise of its trained and certified KNX partners during the product development process.

GUARANTEE GOOD-QUALITY

FOR FATIGUE-FREE WORKING IN A HEALTHY ATMOSPHERE

People are spending an increasing amount of time indoors, and this places greater demands on the coordinated crosssystem indoor climate control systems used in modern residential and non-residential buildings. In addition to removing pollutants, regularly renewing the air supply is vital for healthy ambient air. This is particularly true for well-sealed modern buildings, such as passive or lowenergy houses.

The quality of indoor air is closely linked to the health and performance of the people who breathe it: Stale air makes employees tired. High concentrations of vapours from humans or food can also have a negative effect on employees' mood – particularly if a large number of people are gathered together in a confined space. Ultimately, insufficient ventilation can even lead to lasting health problems. This could be caused by harmful manmade substances such as the vapours from plastics or construction materials, for example.

THE CAUSES OF POOR AIR QUALITY

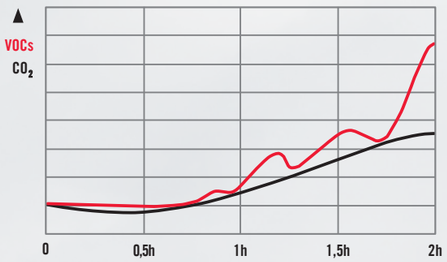
Clean air is comprised of 21% oxygen, 78% nitrogen and 1% argon. However, in indoor environments noble gases, carbon monoxide, carbon dioxide (CO_2) and mixed gases known as volatile organic compounds (VOCs) are also present in the air. There are estimated to be 5,000 to 10,000 different VOCs, which are more likely to be found in higher concentrations indoors than outdoors. VOCs cause eye irritation, headaches, fatigue and dizziness symptomatic of a condition known as “sick building syndrome” (SBS), which could be avoided if buildings were sufficiently ventilated as required. Aside from special ventilation requirements such as those imposed by industry standards, **VOCs are the most important reason to ventilate buildings.**

CAUSE		SUBSTANCES EMITTED
Cause	**Source**	**VOCs** (•) and other substances (•)
People	Breath	• Acetone, ethanol, isoprene
		• CO_2
		• Humidity
	Perspiration	• Nonanal, decanal, α-pinene
		• Humidity
	Flatus	• Methane, hydrogen
	Cosmetics	• Limonene, eucalyptol
	Household materials	• Alcohols, esters, limonene
	Combustion (engines, stoves, cigarettes)	• Unburned hydrocarbons
		• Carbon monoxide
		• CO_2
		• Humidity
Buildings	Paints, varnishes	• Formaldehyde, alkanes, alcohols, aldehydes, ketones, siloxanes
	Adhesives, solvents	
Furnishings & equipment	Carpets	
	PVC	• Toluene, xylene, decane
Consumer products	Printers / copiers	• Benzene, styrene, phenol

The main indoor contaminants and their causes are shown in the table below. People clearly represent the greatest source of VOCs.

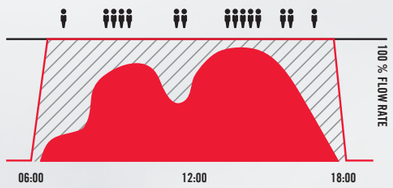
SIX SENSORS IN ONE DEVICE

TECHNOLOGY THAT FOCUSES ON PEOPLE



When people are in a room, the proportion of CO_2 in the air increases at the same time as the proportion of VOC. A classic bonus effect: Not only does the ATMO® presence detector activate the ventilation system once the VOC exceed a certain value, it also automatically removes the CO_2!

SAVINGS POTENTIAL IS OFFERED BY DEMAND-CONTROLLED VENTILATION



PRESENCE DETECTION AND MIXED LIGHT MEASUREMENT

The ATMO® presence detector detects human body heat using passive infrared technology – in combination with an acoustic sensor in complex room layouts – enabling it to activate the technology in the room only when someone is present. Its integrated light sensor also offers presence and daylight dependent constant light control, therefore enabling the best possible use of daylight. Additional safety is provided by the night-light feature and presence simulation.

TEMPERATURE MEASURED AT SEATING LEVEL

Instead of measuring the convective heat on the wall, as temperature sensors usually do, the ATMO® ceiling detector measures the tem perature in the reflection area, for example at desk height. It therefore measures the exact temperature perceived in that area. The KNX bus system then controls the heating or air-conditioning as required, depending on the measurement recorded.

HUMIDITY MEASUREMENT

In addition to the temperature, the ATMO® sensor also measures humidity, therefore ensuring extra energy savings. If the ambient temperature is lowered in individual rooms, a ventilation process is triggered when a defined threshold is exceeded, thereby reducing the risk of mould growth. Used in combination with a humidifi er, the ATMO® sensor can maintain the exact temperature / humidity settings that meet your personal comfort level.

AIR QUALITY MEASURED IN VOC INSTEAD OF CO_2

Air quality is often equated to CO_2 levels, even though CO_2 is odourless and therefore cannot be an indicator of badly smelling air. Much more significant is the VOC value, which indicates the level of anthropogenic vapours from plastics, carpets or cleaning products, and that of biogenic vapours from humans or food. Using its VOC sensor system, the ATMO® presence detector automatically optimises the air quality and ensures that the air conditioning and ventilation system works only as intensively as is required to achieve this.

THREE VARIANTS TO CHOOSE FROM

CAN BE COMBINED IN A BUILDING-WIDE NETWORK

In view of ever-greater demands in terms of comfort, health and energy efficiency, increasingly smart sensors and actuators are now available to automatically control light, heating and ventilation. The market for demand-controlled ventilation (DCV) alone currently offers a whole host of air-quality measurement devices. Typical examples include humidity, CO_2 and VOC sensors.

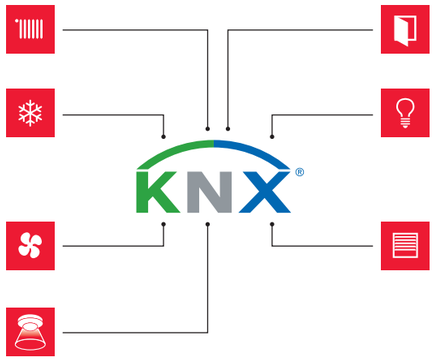
The table below compares the performance of these technologies in various applications and shows that the individual sensors mentioned provide inadequate air-quality assessments in almost all of the applications. It also shows that only a **multi-sensor solution** is able to deliver all the key parameters required for optimum ventilation.

Supplemented with a number of cleverly designed and sophisticated presence, mixed light and tempera ture sensors, ATMO® KNX detectors from ESYLUX boast the full range of sensor technologies for on-demand, energy-efficient modern building control needs.

Demand-responsive, fully compatible and made in Germany – these are the exclusive advantages of the ESYLUX ATMO® series.

EXTRA SAVINGS POTENTIAL BY NETWORKING

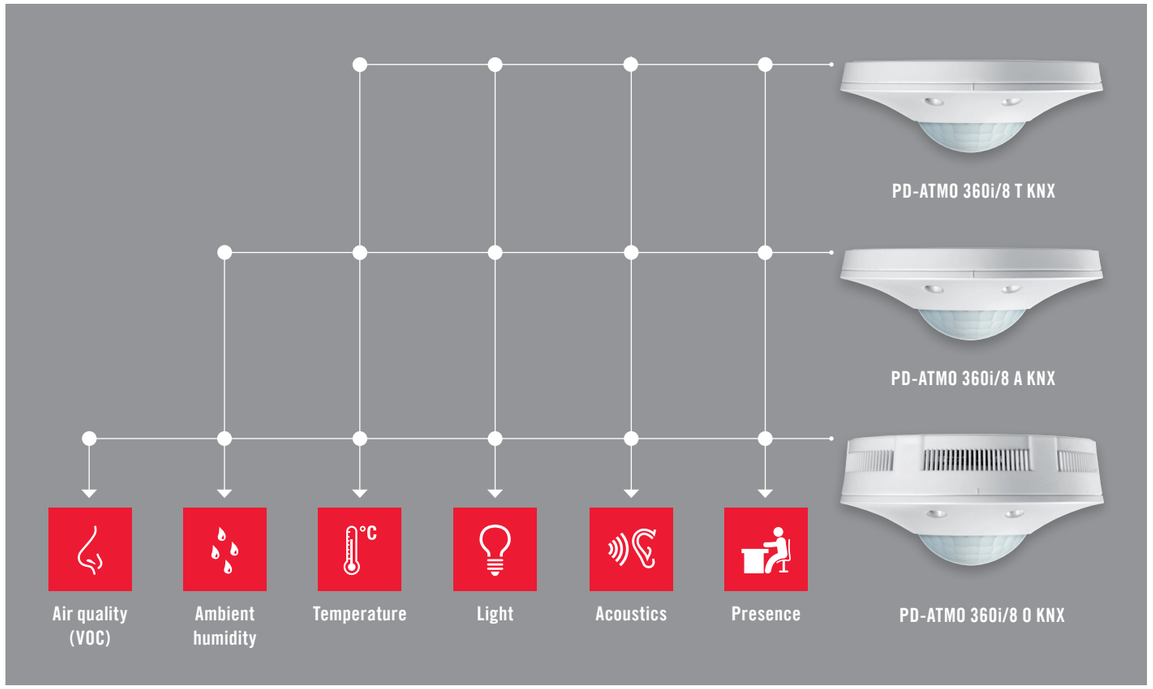
Controlling lighting according to requirements generates energy savings of up to 70%. If the actuators of the various systems are interconnected via the ATMO® sensor, the savings potential is considerably higher still. Furthermore, the ATMO® sensor helps to comply with specific – or, where applicable, statutory – air exchange requirements.

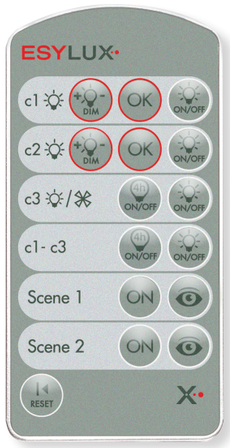


Application	Non-residental buildings												Residental buildings											
	Offices			Conference rooms			Restaurants			Fitness/ sport studios			Toilets			Kitchens			Living rooms			Bed rooms			Bathrooms		
Main occurrences*	**B**	**O**	**H**	**B**	**O**	**H**	**B**	**O**	**H**	**B**	**O**	**H**	**B**	**O**	**H**	**B**	**O**	**H**	**B**	**O**	**H**	**B**	**O**	**H**	**B**	**O**	**H**
Humidity sensor	–	–	•	–	–	•	–	–	•			•		–			–	•	–	–	•	–	–	•		–	•
CO_2-Sensor	•	–	–	•	–	–	•	–	–	•		–		–			–	–	•	–	–	•	–	–		–	–
VOC-Sensor	•	•	–	•	•	–	•	•	–	•	•	–		•			•	–	•	•	–	•	•	–		•	–
ATMO®-Multi sensor	•	•	•	•	•	•	•	•	•	•	•	•		•			•	•	•	•	•	•	•	•		•	•

B = breath O = odours H = humidity

** room-specific factors for the assessment of air quality*





REMOTE CONTROL MOBIL-PDi/USER

Designed for those who value independance: The handy Mobil-PDi/User remote control makes life easier for KNX installers and wins over users thanks to its many functions to control lighting according to the situation.

TEMPORARILY OVERRIDING THE KNX PROGRAMMING

With the remote control, users can access an alternative light scene at any time, without the need to adjust the KNX programming.

AT THE TOUCH OF A BUTTON, YOU CAN...

- dim lights manually
- turn lights on and off
- temporarily store an individual light scene

DOES THE DEVICE NEED TO BE PROGRAMMED PRIOR TO INSTALLATION?

You can use the remote control to put the ATMO® sensor in programming mode even if it has already been fi tted to the ceiling. This means that you can easily adjust or change the KNX parameters at any time, even after installation, without needing to climb a ladder.

APPLICATION EXAMPLES

OFFICES / ADMINISTRATIVE BUILDINGS

SMALL MEETING ROOMS

When many people gather together in very small rooms, the air contamination soon reaches a critical level. Setting the ventilation system to a suitable VOC value can maintain a healthy indoor climate that boosts concentration.

OPEN-PLAN OFFICES

By specifically controlling the level of light, temperature and air quality in workstation clusters you can consistently generate good-quality, fatigue-free air, which increases employee productivity enormously. When the individual clusters are not in use, the temperature is lowered automatically.

CONFERENCE ROOMS

The more people present, the faster the air quality declines and the room temperature rises. This leads to fatigue and impaired performance. Actively monitoring the ambient air helps to ensure acceptable concentrations of CO_2 /VOC in the air. At the same time, the room temperature remains constant by means of a heating control system.

SANITARY FACILITIES

The air quality is often perceived as poor in rooms with high concentrations of human emissions. The ATMO® sensor responds immediately to poor air quality by providing fresh air. It can also control light and heating according to requirements.

HOSPITALS / CARE HOMES

RECEPTION AREAS

Hospital receptions are highly frequented areas with high germ counts and air quality impaired by that typical „hospital smell“ – these conditions call for on-demand air exchange. An integrated room freshener released via the ventilation system makes these areas more inviting.

WAITING ROOMS

Waiting rooms are often stiflingly hot and full of sick people exuding emissions. These are places where air hygiene is of particular importance for patients. The ideal solution is an automatic ventilation system plus presence-activated lighting and heating control.

CANTEENS / REFECTORIES

A classic problem in canteens is that strong food odours and large numbers of people contaminate the air quality. An on-demand supply of fresh, oxygen-rich air guarantees a positive dining experience. As a further benefit, optimum ventilation prevents unwanted food odours from clinging to your clothes.

EXAMINATION ROOMS

The typical challenges faced by examination rooms include having to maintain a comfortable ambient temperature, dealing with many people coming and going, and coping with emissions from medical cleaning agents. The ATMO® sensor can provide effective air-quality management in this scenario. What‘s more, if examination rooms are not in constant use, energy can be saved by controlling lighting depending on whether or not people are present.

APPLICATION EXAMPLES

SCHOOLS / UNIVERSITIES

CHANGING ROOMS

Sweaty bodies, clothes and shoes go hand in hand with poor air quality. The ATMO® sensor ensures an adequate supply of fresh air, even after hard workouts. It can also be used for controlling light and temperature according to requirements and for regulating the ambient humidity of any adjacent shower areas.

STAFF ROOMS

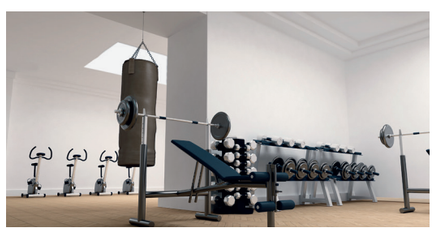
After their strenuous lessons, teachers often really need to recover but staff rooms tend to be full of emissions from food and the sheer number of colleagues present. Teachers could do without being subjected to these conditions during their short break times. The ATMO® sensor specifically controls air hygiene and improves levels of concentration and performance.

CLASSROOMS

Hohe Klassenstärken gepaart mit der intensiven Nutzung von Kosmetik und Körperpflegemitteln sowie Ausdünstungen von Stiften, Klebern und Co. – dieser Situation sind Lehrer und Schüler im Unterricht dauerhaft ausgesetzt. Die geregelte Frischluftzufuhr per ATMO®-Sensor legt die Basis für eine konzentrierte Arbeitsatmosphäre bei optimalem Sauerstoffgehalt fest.

FITNESS ROOMS

When people exercise in enclosed spaces, the levels of ambient humidity and odour emissions rise. An ATMO® sensor placed directly in the training area can trap high concentrations of odours and control the ambient humidity and oxygen supply according to requirements. People exercising feel fitter if they have enough fresh air, even during hard workouts.



HOUSES / LOW-ENERGY BUILDINGS

LIVING ROOMS WITH FIREPLACES

A huge amount of savings potential lies in controlling light, heat and ventilation in the living area depending on whether or not people are present. As fireplaces produce dry heat, the ATMO® sensor can also optimise the indoor climate by humidifying used air and enriching it with oxygen, as need be.

OPEN-PLAN KITCHENS

If you fit an ATMO® sensor in your kitchen, it will automatically activate the ventilation system when you start cooking. This means that your clothes will remain free from stubborn food odours, and when you sit down to eat you will not be bothered by any unpleasant-smelling residues in the air.

GUEST TOILETS

You can save energy costs by controlling the lighting and heating in this rarely used room as individuals enter and leave. What‘s more, by actively detecting the VOC value, the ATMO® sensor guarantees good air quality, even in rooms without windows.

CONSERVATORIES

As conservatories have large glass surfaces their climatic conditions are very different from those in the rest of the house, and the differences in the outdoor climate depending on the time of day and year have a huge impact on temperature and humidity. The solution for a constant climate is a smart system that controls temperature, humidity and air circulation.

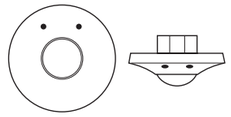
ATMO®-SENSORS

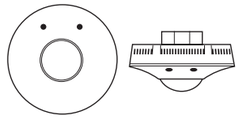
OVERVIEW

Productgroup / productname	PD-ATMO 360i/8 T KNX	PD-ATMO 360i/8 A KNX	PD-ATMO 360i/8 O KNX
Item no.	EP10427213	EP10427206	EP10427220
			
PRESENCE DETECTION	•	•	•
Range of detection	8 m	8 m	8 m
Detection angle	360°	360°	360°
Light value	5–2000 lux	5–2000 lux	5–2000 lux
Light value output	•	•	•
Light controlling / regulating / switching	•	•	•
Light channel semi-automatic/fully automatic	•	•	•
Master / slave function	•	•	•
Switch RGB LED display on/off	•	•	•
Night-light feature	•	•	•
Presence simulation	•	•	•
HVAC object	•	•	•
Twilight switch	•	•	•
Acoustic sensor	•	•	•
TEMPERATURE MEASUREMENT	0 °…50 °C	0 °…50 °C	0 °…50 °C
Choice of 2 thresholds	•	•	•
Cyclic output	•	•	•
HUMIDITY MEASUREMENT		0…100 % (relative)	0…100 % (relative)
Choice of 2 thresholds		•	•
Cyclic output		•	•
AIR QUALITY MEASUREMENT			450…5000 ppm
Adjustable visual and audible alarm			•
Choice of 3 threshold options			•
Cyclic output			•
TECHNICAL INFORMATION			
Power supply	29–31 V DC (KNX)	29–31 V DC (KNX)	29–31 V DC (KNX) / 230 V AC
Power consumption	< 0,3 W	< 0,3 W	< 1 W
Permissible ambient temperature	5 °C…+35 °C	5 °C…+35 °C	5 °C…+35 °C
Protection type	IP 20	IP 20	IP 20
Protection class	III	III	II
Dimensions	108 x 38 mm	108 x 38 mm	108 x 52 mm

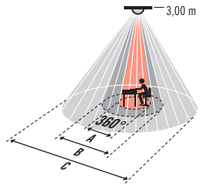
Technical and optical modifications are subject to change without notice. Differences of +/- 10 % are possible for the performance data.

TYPES





FIELDS OF DETECTION



DETECTION RANGE

	Ceiling 8 m
Working area (A)	4 m
Head-on (B)	6 m
diagonally (C)	8 m