

KNX SENSORS | GB  
ATMO® SERIES

ESYLUX®



KNX SENSORS  
ATMO® SERIES



A man with dark, curly hair and a beard, wearing a dark grey button-down shirt, is holding a white, circular sensor device in his right hand, presenting it towards the camera. The device has a central lens and a vented base. The background is plain white.

**4 SENSORS IN 1 DEVICE:  
THE NEW ESYLUX ATMO® SENSORS**

# FOR THE HIGHEST LEVEL OF COMFORT

AS A DRIVER OF INNOVATIONS IN SMART SENSOR TECHNOLOGY, ESYLUX HAS DEVELOPED A UNIQUE SOLUTION FOR CONTROLLING LIGHT, TEMPERATURE, AIR QUALITY AND HVAC APPLICATIONS WHICH TAKES THE PERFORMANCE OF THE KNX SYSTEM ENVIRONMENT TO A WHOLE NEW LEVEL.

THE COMPACT ATMO® SENSOR COMBINES FOUR INDIVIDUAL SENSORS IN A SINGLE DEVICE. IT MEASURES MOVEMENT, TEMPERATURE, HUMIDITY AND VOCs (VOLATILE ORGANIC COMPOUNDS) AND THEREFORE ANALYSES ALL FACTORS THAT CONTRIBUTE TO A COMFORTABLE ENVIRONMENT, WHETHER AT HOME OR AT WORK. AS THERE'S NO NEED TO INSTALL ADDITIONAL SENSORS, THE AESTHETICS OF THE ROOM IS GREATLY ENHANCED, WHEREAS THE INSTALLATION AND PROGRAMMING EFFORTS ARE MINIMIZED.

SO SIMPLE, SO ADVANCED – TYPICALLY ESYLUX.

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## WE'RE A MEMBER

As a member of the KNX Association, ESYLUX manufactures a range of KNX-certified products (see list below).

Furthermore, we run a certified KNX training centre as part of our aim to actively contribute to enhancing the skills of our employees. When it comes to product development, ESYLUX also benefits from the knowledge and expertise of its skilled, certified KNX employees.



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**ATMO® – THE PIONEERING DEVICE FOR A FATIGUE-FREE,  
HEALTHY CLIMATE IN THE WORKPLACE AND AT HOME**



## THE IMPORTANCE OF INDOOR CLIMATE: FOCUSING ON HEALTH AND PERFORMANCE

People are spending an increasing amount of time indoors, and this places greater demands on the coordinated cross-system 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 low-energy houses.

Indoor air quality directly affects the health and performance of occupants. Stale air, which is typically

identified as having a higher CO<sub>2</sub> content, makes people tired and high concentrations of emissions from people or food have a negative impact on mood, especially when many people are gathered in a confined space. Ultimately, poor air exchange can even lead to permanent health damage, caused for instance by artificial sources of pollution such as emissions from plastic and building materials.

### 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<sub>2</sub>) 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.**

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

CAUSE		SUBSTANCES EMITTED
Cause	Source	VOCs (●) and other substances (●)
People	Breath	<ul style="list-style-type: none"> <li>● Acetone, ethanol, isoprene</li> <li>● CO<sub>2</sub></li> <li>● Humidity</li> </ul>
	Perspiration	<ul style="list-style-type: none"> <li>● Nonanal, decanal, α-pinene</li> <li>● Humidity</li> </ul>
	Flatus	<ul style="list-style-type: none"> <li>● Methane, hydrogen</li> </ul>
	Cosmetics	<ul style="list-style-type: none"> <li>● Limonene, eucalyptol</li> </ul>
	Household materials	<ul style="list-style-type: none"> <li>● Alcohols, esters, limonene</li> </ul>
	Combustion (engines, stoves, cigarettes)	<ul style="list-style-type: none"> <li>● Unburned hydrocarbons</li> <li>● Carbon monoxide</li> <li>● CO<sub>2</sub></li> <li>● Humidity</li> </ul>
		Buildings
Paints, varnishes		
Adhesives, solvents		
Furnishings & equipment	Carpets	<ul style="list-style-type: none"> <li>● Toluene, xylene, decane</li> </ul>
	PVC	
Consumer products	Printers/copiers	<ul style="list-style-type: none"> <li>● Benzene, styrene, phenol</li> </ul>

## 4 SENSORS IN 1 DEVICE



### PRESENCE DETECTION AND MIXED LIGHT MEASUREMENT

The ATMO® sensor can control light to maintain a constant brightness level, taking into account the effects of presence and natural light. Presence is detected by means of passive infrared technology.

With its integrated acoustic sensor that detects noise, the ATMO® sensor guarantees reliable detection, even in rooms with complex layouts. The night-light feature offers extra security.



### 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 temperature 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 humidifier, the ATMO® sensor can maintain the exact temperature/humidity settings that meet your personal comfort level.



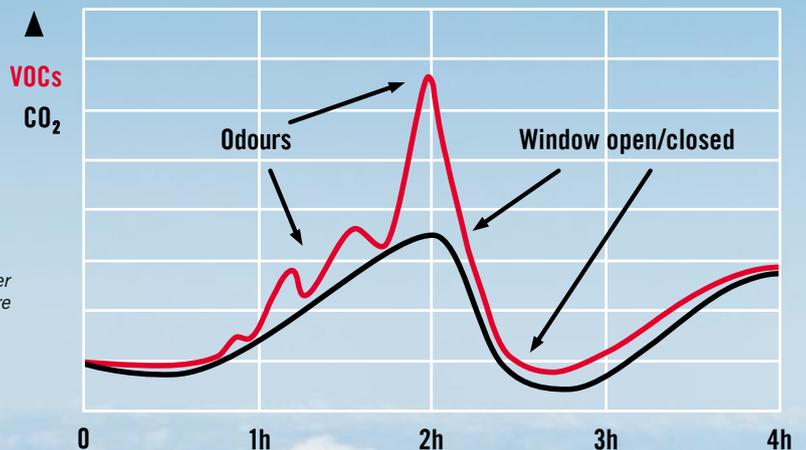
## AIR QUALITY MEASURED IN VOC\* INSTEAD OF CO<sub>2</sub>

Air quality is often equated with its CO<sub>2</sub> content. However, this overlooks the fact that CO<sub>2</sub> is odourless and therefore not an indicator of foul-smelling air. The VOC value is much more indicative: it shows the level of anthropogenic emissions, for example from plastics, building materials, furniture, carpets or cleaning agents, as well as biogenic emissions from people or food. Basically, the higher the VOC value, the higher the level of odorous or odourless contamination of the ambient air.

\*Volatile organic compounds

### Conference room application:

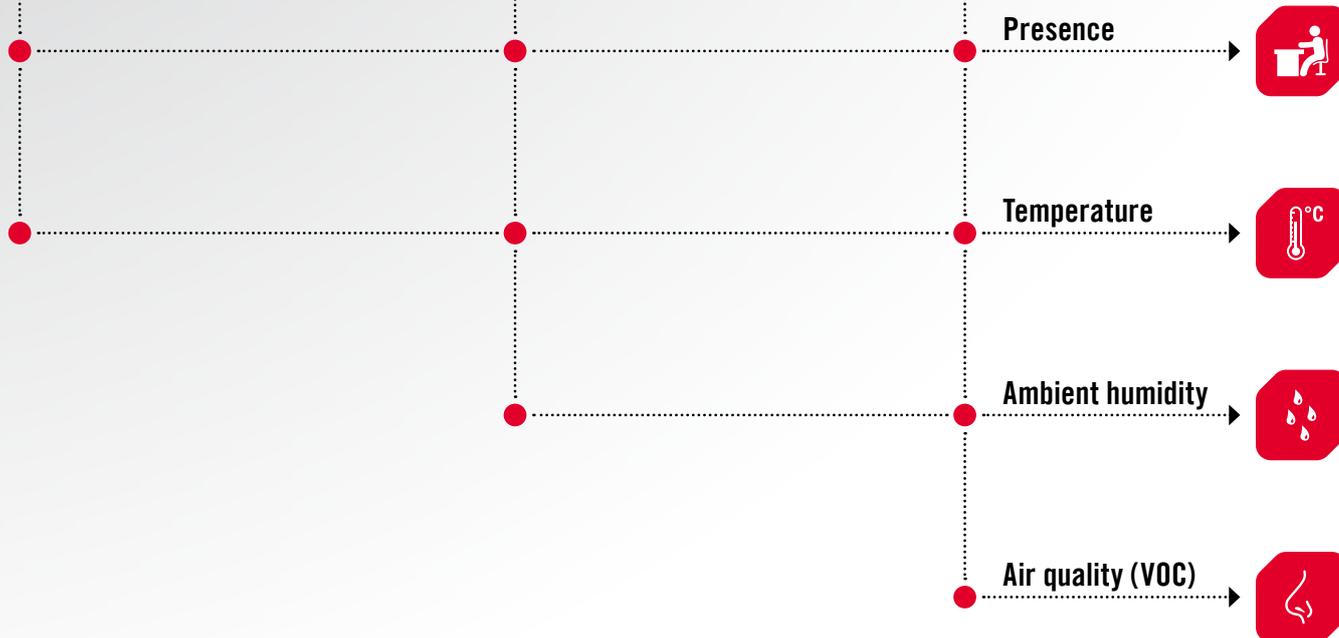
CO<sub>2</sub> sensors (black) do not pick up odours, cigarette smoke or other VOCs. VOC sensors (red) therefore deliver measurements that are far more attuned to specific requirements.



PD-ATMO 360i/8 T KNX

PD-ATMO 360i/8 A KNX

PD-ATMO 360i/8 O KNX



### 3 DIFFERENT MODELS TO MEET REQUIREMENTS

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<sub>2</sub> 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 temperature 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.

APPLICATION:	NON-RESIDENTIAL BUILDINGS												RESIDENTIAL BUILDINGS																	
	Offices			Conference rooms			Restaurants			Fitness/sport studios			Toilets			Kitchens			Living rooms			Bed rooms			Bathrooms					
	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	B	O	H
<b>Typical emissions</b>																														
Humidity sensor	-	-		-	-		-	-	•			•		-			-	•	-	-		-	-			-	•			
CO <sub>2</sub> sensor	•	-		•	-		•	-	-	•		-		-			-	-	•	-		•	-			-	-			
VOC sensor	•	•		•	•		•	•	-	•	•	-	•			•	-	•	•		•	•			•	•	-			
<b>ATMO® multi-sensor</b>	•	•		•	•		•	•	•	•	•	•	•			•	•	•	•		•	•			•	•	•			

B = breath O = odours H = humidity

## 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.

## REMOTE CONTROL MOBIL-PDi/USER

Designed for those who value independence: 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 fitted 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.





## 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<sub>2</sub>/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.



## 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.



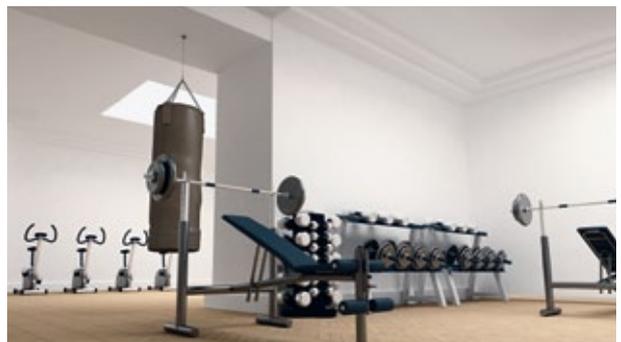
### STAFF ROOMS

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

In classrooms, teachers and students are constantly exposed to an environment shaped by large class sizes, intensive use of cosmetics and toiletries as well as emissions from pens, glues, etc. The ATMO® sensor provides a controlled supply of fresh air, laying the foundations for a concentrated working atmosphere with an optimum oxygen level.



### 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.

# OVERVIEW OF THE ATMO® SENSORS

PRODUCT NAME	PD-ATMO 360i/8 T KNX	PD-ATMO 360i/8 A KNX	PD-ATMO 360i/8 O KNX
Item no.	EP10427213	EP10427206	EP10427220
<b>PRESENCE DETECTION</b>	●	●	●
Range of detection	8 m	8 m	8 m
Field of detection	360°	360°	360°
Light value	5 - 2,000 lux	5 - 2,000 lux	5 - 2,000 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	●	●	●
<b>TEMPERATURE MEASUREMENT</b>	0 °...50 °C	0 °...50 °C	0 °...50 °C
Choice of 2 thresholds	●	●	●
Cyclic output	●	●	●
<b>HUMIDITY MEASUREMENT</b>		0...100 % (relative)	0...100 % (relative)
Choice of 2 thresholds		●	●
Cyclic output		●	●
<b>AIR QUALITY MEASUREMENT</b>			450...5,000 ppm
Adjustable visual and audible alarm			●
Choice of 3 threshold options			●
Cyclic output			●
<b>TECHNICAL INFORMATION</b>			
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	0 °...50 °C	0 °...50 °C	0 °...50 °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

## FIELDS OF DETECTION

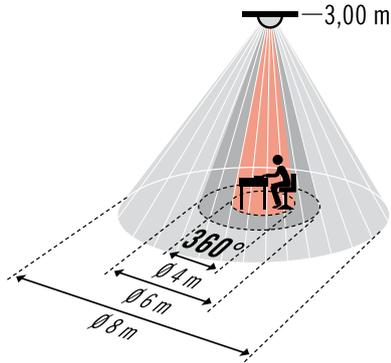
### PRESENCE DETECTOR

PD-ATMO 360i/8 T KNX | PD-ATMO 360i/8 A KNX | PD-ATMO 360i/8 O KNX

Field of detection

Ø 8 m

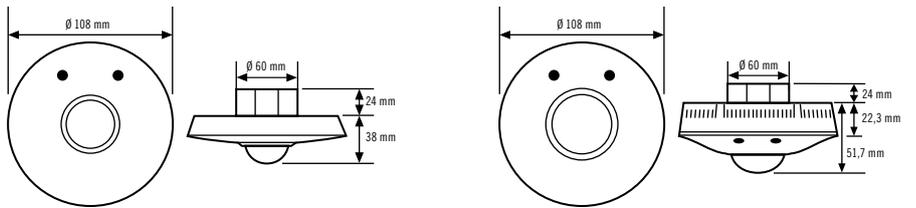
-  Working area
-  Head-on to detector
-  Passage area/ diagonally to detector



## PRODUCT SCALE DRAWINGS

### PRESENCE DETECTOR

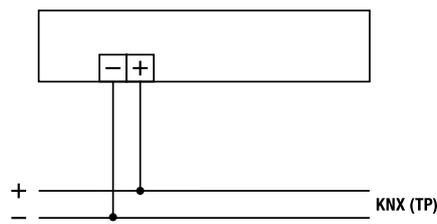
PD-ATMO 360i/8 T KNX | PD-ATMO 360i/8 A KNX | PD-ATMO 360i/8 O KNX



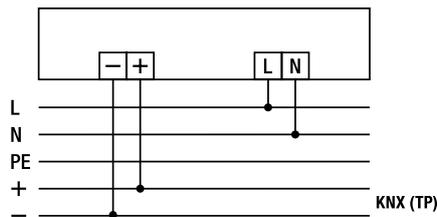
## CIRCUIT DIAGRAMS

### PRESENCE DETECTOR

PD-ATMO 360i/8 T KNX | PD-ATMO 360i/8 A KNX



PD-ATMO 360i/8 O KNX



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