ESYLUX

IMPROVING INDOOR AIR QUALITY AND LIGHT EFFICIENTLY. ESY!

RADIATION-FREE PIR SENSORS WITHOUT ELECTROSMOG

KNX

SMART MULTI-SENSOR KNX-PRESENCE DETECTORS ATMO® SERIES

PERFORMANCE FOR SIMPLICITY

ESYLUX GmbH | sales@esylux.com | www.esylux.com

COMPACT MULTI -SENSOR SYSTEM

FOR SMART, MULTIDISCIPLINARY CONTROL

- Up to 6 individual sensors in a single device for easy planning and installation
- Presence and daylight-dependent constant lighting control
- Demand-dependent control of air conditioning, ventilation, heating and air purification appliances
- 3 configurations to suit various requirements

NEW!

PD-ATMO 360i/8 O AUX 30V KNX

- Air quality (VOC)
- Humidity
- Temperature
- Light
- Passive infrared (presence)
- Acoustic (presence)

PD-ATMO 360i/8 A KNX

- Humidity
- Temperature
- Light
- Passive infrared (presence)
- Acoustic (presence)

PD-ATMO 360i/8 T KNX

- Temperature
- Light
- Passive infrared (presence)
- Acoustic (presence)

High air quality, a comfortable interior atmosphere and the right lighting keep personnel healthy and improve their performance at work. Poor air quality, on the other hand, makes them tired, feel unwell and, in the worst case scenario, may even spread pathogens. Regular air exchange is therefore extremely important in modern, highly insulated buildings.

ALL-IN-ONE FOR ENERGY EFFICIENT QUALITY OF LIFE

The ATMO presence detector delivers the perfect solution for multidisciplinary control in KNX systems. Its multi-sensor means that it not only records the current lighting situation, but also senses changes in temperature, humidity and, in the highest configuration level, also air quality.

Up to six sensors in a single device enable it to adjust the lighting to the optimum brightness automatically and provide a healthy and productive ambient climate at the workstation – all while maximising energy efficiency. It therefore eliminates the need for multiple individual solutions and proves how simple complex requirements can be satisfied using smart technology.

AIR FOR CLEAR MINDS

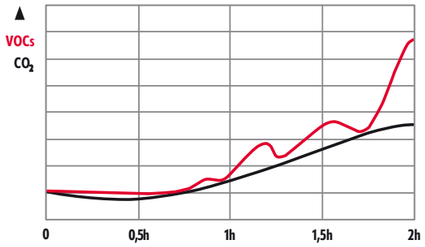
FOR WORKING WITHOUT FATIGUE IN A HEALTHY ATMOSPHERE

Air quality is often equated to CO_2 levels, even though CO_2 is odourless and therefore cannot be an indicator of malodorous air. The VOC value for volatile organic compounds delivers significantly more information: anthropogenic vapours from synthetic and building materials, furniture, carpets and cleaning agents or biogenic vapours caused by people and food – an everyday occurrence, particularly in enclosed spaces.

AIR QUALITY MONITORING BASED ON VOC INSTEAD OF CO_2

Excessive concentrations of mixed gases such as VOCs have a negative effect on mood and cause symptoms of so-called sick building syndrome such as eye irritations, headaches, fatigue and dizziness. Apart from special standards-based requirements as in industry, VOCs are therefore the main reason for ventilating a building.

The ATMO presence detector improves the air quality automatically with its VOC sensor and also eliminates the problem caused by CO_2. When people are in a room, the CO_2 content of the air rises at a similar rate as the VOC content. If the presence detector activates the ventilation system when a certain VOC value is exceeded, it automatically eliminates CO_2 – a classic bonus effect!



HUMIDITY MEASUREMENT TO PREVENT MOULD AND DRYNESS

Humidity is another quality factor for indoor air. If the air is too dry, it will irritate the mucous membranes and eyes, but if it is too moist, it will promote the development of mould and mildew. The humidity sensor in the ATMO presence detector activates the ventilation system as soon as defined threshold values are exceeded and uses a humidity system to create precisely the temperature and humidity constellation that makes us humans feel good.

TEMPERATURE MEASUREMENT AT SITTING HEIGHT

A person can only work productively in a balanced room temperature, which is neither too cold nor too warm. The ATMO multi-sensor therefore also includes a temperature sensor. Instead of convection heat on the wall, which is how other temperature sensors work, the ATMO records the temperature in the reflection area, for example at desk height. That means it measures precisely the temperature value which people feel.

CAUSES OF IMPURE INDOOR AIR

CAUSE		EVAPORATED SUBSTANCES
Cause	**Source**	**VOCs** (•) and other substances (◦)
Person	Breath	• Acetone, ethanol, isoprene
		◦ CO_2
		◦ Moisture
	Transpiration	• Nonanal, decanal, a-pinene
		◦ Moisture
	Flatus	• Methane, hydrogen
	Cosmetics	• Limonene, eucalyptol
	Household materials	• Alcohol, ester, limonene
	Combustion (engines, furnaces, cigarettes)	• Non-combusted hydrocarbons
		◦ Carbon monoxide
		◦ CO_2
		◦ Moisture
Buildings	Paints, other coatings	• Formaldehyde, alkanes, alcohols, aldehydes, ketones, siloxanes
	Adhesives, solvents	
Furnishings	Carpets	
	PVC	• Toluol, xylol, decane
Consumer products	Printers/copiers	• Benzol, styrene, phenol

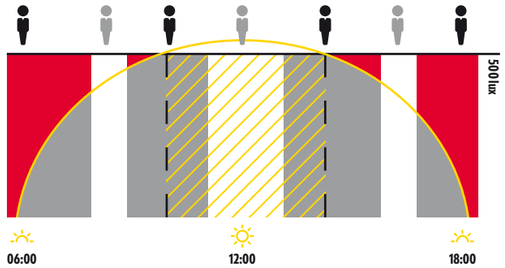
This table shows the main indoor contaminants and their causes. Humans are the biggest source of VOCs.

Pure air consists of 21 % oxygen, 78 % nitrogen and 1 % argon. Noble gases, carbon monoxide, carbon dioxide (CO_2) and mixed gases, known as volatile organic compounds (VOCs), are added to this mix in indoor areas. They generally occur in enclosed areas in significantly higher concentrations than outdoors.

COMFORT ABLE EFFICIENCY

BY DEMAND-CONTROLLED OPERATION

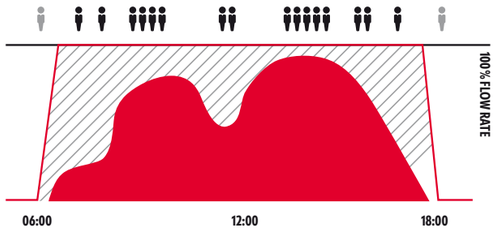
PRESENCE AND DAYLIGHT-DEPENDENT CONSTANT LIGHTING CONTROL



Proportion of artificial light
Sufficient natural light
Present
Absent

The best form of using daylight: Constant lighting control of a presence detector.

DEMAND-DEPENDENT CONTROL OF AIR CONDITIONING OR VENTILATION SYSTEM



Constant air volume flow
Smart controlled ventilation
Energy saving

The ATMO delivers efficient control and enables compliance with specific, possibly statutory, regulations in terms of their exchange.

LIGHT SENSOR FOR DAYLIGHT-DEPENDENT CONSTANT LIGHTING CONTROL

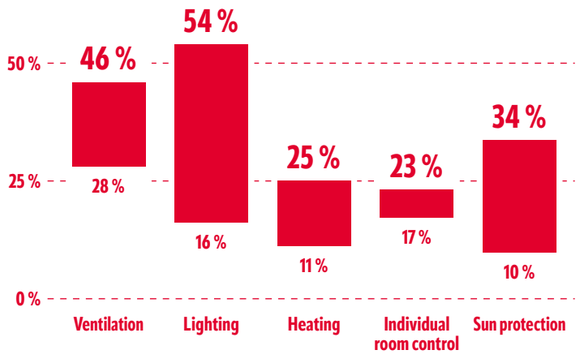
Use energy only when it is really needed – the ATMO presence detector implements the principle of demand-driven automation in a particularly all-embracing way. It starts with lighting: it uses its light sensor to check the brightness and dims the artificial light only as much as the existing daylight requires. This means that it provides excellent lighting conditions whilst also preventing lights always shining at full strength.

ENERGY EFFICIENCY THROUGH PRESENCE DETECTION: PASSIVE INFRARED AND ACOUSTIC

Its air quality, humidity and temperature sensors also enables it to control the various systems on the basis of actual demand: using limit values which can be adjusted as required. In addition, using its passive infrared presence detector it checks that appliances are only switched on if people are present and this function receives additional support from an acoustic sensor in complex room layouts.

This enables the ATMO presence detector to reduce overall energy consumption whilst also improving the quality of life at the workstation by delivering perfect lighting and air conditions. It enables people to take care of the things that are really important while also saving money.

ENERGY SAVING POTENTIAL OF DEMAND-DRIVEN BUILDING AUTOMATION (MIN./MAX.)

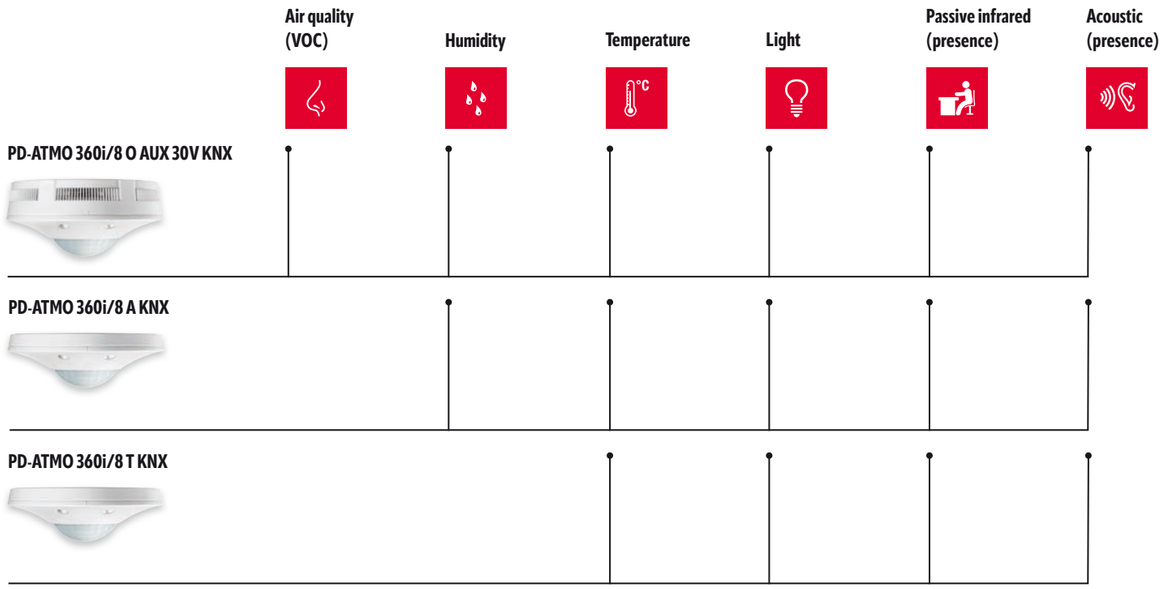


Source: Zentralverband Elektrotechnik- und Elektroindustrie e.V. (Central Association of the Electrical Engineering and Electronics Industry) (ZVEI)/University of Biberach.

VERSIONS FOR EVERY ROOM

TO IMPROVE WHOLE BUILDINGS

Different rooms have different requirements – this rule of thumb also applies to improving the indoor climate and air conditions. The ATMO presence detector can therefore be supplied in several configurations with individual sensors for a range of applications or simply to deliver a different level of comfort.



TYPICAL ROOM FACTORS FOR ASSESSING AIR QUALITY

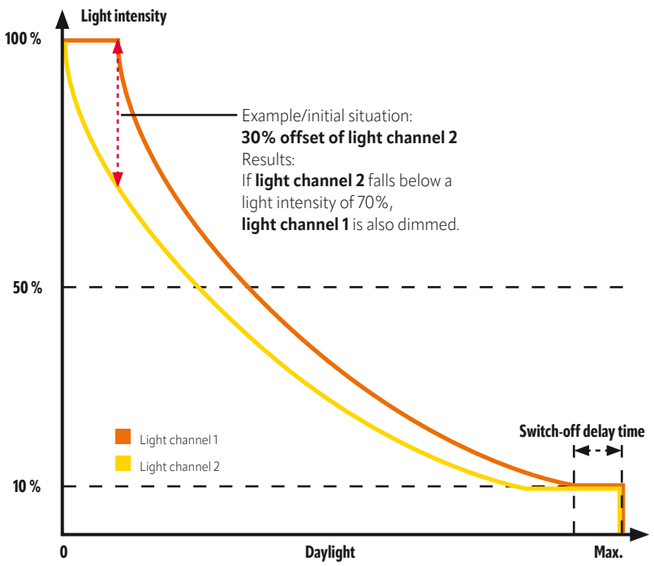
Application	Offices			Conference facilities			Canteens			Sanitary facilities		
Main events	**A**	**G**	**F**	**A**	**G**	**F**	**A**	**G**	**F**	**A**	**G**	**F**
Humidity sensor			•			•			•			•
CO_2 sensor	•			•			•					
VOC sensor	•	•		•	•		•	•			•	
ATMO' multi-sensor	•	•	•	•	•	•	•	•	•		•	•

A = Breath G = Odours F = Humidity

The market has a wide range of different air quality measurement principles solely for ventilation purposes. Typical types include humidity, CO_2, and VOC sensors. However, individual sensors do not deliver adequate assessments of air quality in almost any of the applications. Only a multi-sensor solution delivers the main parameters for perfect ventilation scenarios.

Particularly in rooms with only one bank of windows, users benefit from lighting control with two broadcast channels: an offset between two channels enables the lights close to the window to dim even if 100% illuminance is still required in the area of the room furthest from the window. This creates optimal lighting conditions while improving energy efficiency.

TWO-CHANNEL LIGHT CONTROL WITH OFFSET



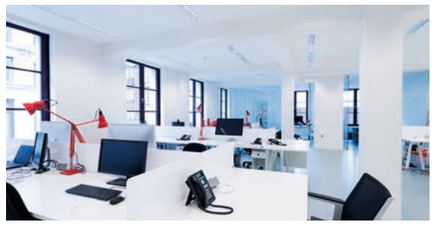
TYPICAL APPLICATIONS

IN OFFICES, EDUCATIONAL INSTITUTIONS AND HEALTH FACILITIES

PD-ATMO 360i/8 O AUX 30V KNX

OPEN-PLAN OFFICE

Regular improvement of the quality is particularly recommended in environments where there are lots of people within one room. Open-plan offices are a typical example of this. The targeted control of working light, temperature and air quality at workstations creates uniformly good, fatigue-beating indoor air and improves productivity.



CONFERENCE ROOM

The more people that are present, the faster the quality of the indoor air is reduced and the room temperature rises. This results in fatigue and reduced performance. Particularly during meetings, the cause of this often goes unnoticed because everybody's focus is fully on the discussion. Its active indoor air monitoring system enables the ATMO presence detector to deliver excellent air quality automatically and keep the room temperature constant with its heating controls.

CLASSROOMS AND STAFF ROOMS

Large class sizes, the intensive use of cosmetics and body care products as well as vapours from pens, glue and the like all add up to a situation that will be all too familiar to teachers and students. And in staff rooms, too, a controlled supply of fresh air from the ATMO presence detector will create a pleasant working atmosphere with perfect oxygen levels.

FITNESS CENTRES AND CHANGING ROOMS

Training in enclosed areas increases humidity and intensifies odours. The PD-ATMO traps odours and ensures the demand-based control of humidity and oxygen supply levels. That makes athletes feel fitter, even during heavy training sessions. Other possible uses: demand-dependent light and temperature control and controlling humidity levels in adjoining shower areas.

WAITING ROOMS AND EMERGENCY DEPARTMENTS

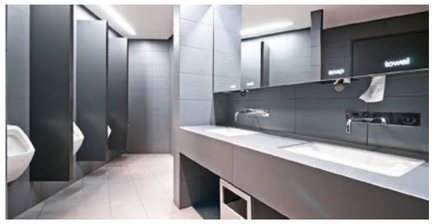
High levels of traffic, high pathogen loads, disease-laden body vapours or typical hospital odours mean that regular air exchange is essential. The solution: auto-matic ventilation and venting plus presence-dependent lighting and heating control. The area will be even more inviting if scents are added to the ventilation system.

PD-ATMO 360i/8 O AUX 30V KNX

CANTEENS AND REFECTORIES

Intensive food odours and lots of people place a strain on the air quality in canteens and refectories. The demand-dependent supply of fresh, oxygen-rich air improves the feeling of well-being and guarantees a positive dining experience. Other benefits: good ventilation prevents food odours adhering to clothing.

PD-ATMO 360i/8 A KNX



SANITARY FACILITIES

Humidity levels are generally high in sanitary facilities. This means that condensation forms on cold surfaces enabling unsightly mould spores to grow at room temperature – not a healthy long term prospect for either people or the building. By recording the relative humidity to calculate the dew point, the PD-ATMO 360i/8 A KNX rectifies this situation and also controls the light and heating.

The use of the PD-ATMO 360i/8 O AUX 30V KNX is advisable if unpleasant odours are an additional burden.

PD-ATMO 360i/8 T KNX

SINGLE OFFICE

In rooms with very low numbers of personnel, the main objective is to achieve a balanced temperature of between 20 and 24 °C as well as excellent lighting at the workstation. By controlling the heating or air conditioning system and using a presence and daylight dependent constant light control, the PD-ATMO 360i/8 T KNX can satisfy both these requirements at once. If you want to provide your personnel with even more comfort, choose the highest configuration with an additional automatic air quality improvement function.

OTHER KNX FUNCTIONS:

- Second light channel with offset control
- Acoustic warning for manual ventilation
- Presence simulation
- Scene telegram via object
- Night light (7 colours to choose from)

As a member of the KNX Association, not only does ESYLUX manufacture KNX-certified products and benefit from the expertise of its trained, certified KNX personnel for its product development. ESYLUX is also a committed, certified KNX training establishment, making an active contribution to providing its customers with advanced training.

TOP ESYLUX KNX PRODUCTS

Product group / product name	Item no.	Product description	Dimensions
COMPACT			
PD-C 180i KNX	EP10426445	KNX presence detector with 180° field of detection for wall mounting	(L) 70 x (W) 70 x (D) 55 mm
PD-C 360i/8 KNX UP	EP10427404	KNX presence detector with 360° field of detection for ceiling mounting	(Ø) 108 x (H) 62 mm
PD-C 360i/24 KNX UP	EP10427428	KNX presence detector with 360° field of detection for ceiling mounting	(Ø) 108 x (H) 70 mm
PD-C 360i/32 KNX	EP10427794	KNX presence detector with 360° field of detection for ceiling mounting	(Ø) 108 x (H) 70 mm
FLAT			
PD-FLAT 360i/8 ROUND WHITE KNX	EP10451706	KNX design presence detector, range approx. 8 m in diameter for flush mounting	(Ø) 94 x (H) 30 mm
PD-FLAT 360i/8 ROUND BLACK KNX	EP10451768	KNX design presence detector, range approx. 8 m in diameter for flush mounting	(Ø) 94 x (H) 30 mm
COMPACT MINI			
PD-C 360i/8 mini KNX	EP10426155	KNX mini presence detector with 360° field of detection for recessed ceiling mounting	(Ø) 33 x (H) 60 mm
PD-C 360i/12 mini KNX	EP10426162	KNX mini presence detector with 360° field of detection for recessed ceiling mounting	(Ø) 58 x (H) 70 mm
BASIC			
PD 360/8 KNX BASIC	EB10430442	KNX presence detector with 360° field of detection for ceiling mounting	(Ø) 101 x (H) 33 mm

CONVENIENT OVERRIDE

The Mobil-PDi/User remote control enables the end user to override the system easily in certain situations and makes the work for the KNX installer easier. It enables KNX programming during operation without any adjustments

- **Manual dimming and activation of lighting**
- **Loading an individual light scene**
- **Saving a light scene temporarily**

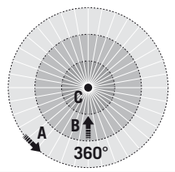
In addition, the ATMO® presence detector can be set to programming mode using the remote control. A retrospective change to existing KNX parameters is therefore possible at any time after ceiling mounting – with great convenience and without the need for a ladder.

REMOTE CONTROL PDi/USER
Item no. EM10425547

ATMO VERSIONS IN DETAIL

Product group / product name	PD-ATMO 360i/8 T KNX	PD-ATMO 360i/8 A KNX	NEW! PD-ATMO 360i/8 O AUX 30V KNX
Item no.	EP10427213	EP10427206	EP10427664
			
PRESENCE DETECTION	•	•	•
Detection range	8 m	8 m	8 m
Sensing range	360°	360°	360°
Light value	5 – 2000 lux	5 – 2000 lux	5 – 2000 lux
Light value output	•	•	•
Regulate/control/switch lights	•	•	•
Semi/fully automatic light channel	•	•	•
Master/slave function	•	•	•
Switch RGB LED displays on and off	•	•	•
Night-light feature	•	•	•
Presence simulation	•	•	•
HVAC object	•	•	•
Twilight switch	•	•	•
Acoustic sensor	•	•	•
TEMPERATURE RECORDING	0 °C…50 °C	0 °C…50 °C	0 °C…50 °C
2 limit values can be set	•	•	•
Cyclical output	•	•	•
HUMIDITY MEASUREMENT		0 – 100 % (relative)	0 – 100 % (relative)
2 limit values can be set		•	•
Cyclical output		•	•
AIR QUALITY MEASUREMENT			450 – 5000 ppm
Acoustic alarm can be set			•
3 limit value options can be set			•
Cyclical output			•
TECHNICAL DATA			
Power supply	29 – 31 V DC (KNX)	29 – 31 V DC (KNX)	29 – 31 V DC (KNX) + 24 – 30 V DC (AUX)
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	(Ø) 108 x (H) 38 mm	(Ø) 108 x (H) 38 mm	(Ø) 108 x (H) 52 mm

FIELD OF DETECTION / RANGE



	Ceiling 8 m
Diagonally (A)	Ø 8 m
Head-on (B)	Ø 6 m
Presence area (C)	Ø 4 m

Product group / product name	Item no.	Product description	Dimensions
ACCESSORIES			
Protection			
BASKET GUARD ROUND LARGE	EM10425608	Basket guard, white	(Ø) 180 mm x (H) 90 mm
BASKET GUARD ROUND SMALL	EM10425615	Basket guard, white	(Ø) 180 mm x (H) 70 mm
Remote control			
REMOTE CONTROL PDi/USER	EM10425547	End-user remote control for ATMO series	(L) 100 x (W) 50 x (D) 9 mm
TELESCOPE MAGNET	EC10430022	Remote control	

SWITCHING ALTERNATIVES

PRESENCE DETECTOR WITH HVAC OUTPUT

COMPACT SERIES

CONTROL IN A UNIFORM DESIGN

- **Numerous variants for multi-channel light and HVAC control**
- **One design for all applications within a building**
- **Two-piece housing for simple installation**
- **KNX wall-mounted detectors with motion direction detection function**

COMPACT MINI SERIES

QUALITY SENSOR SYSTEM IN THE SMALLEST FORMAT

- **Particularly compact design for unobtrusive operation**
- **DALI and KNX designs with orientation light function**
- **KNX variants with individual switch-off delay time for HVAC**

FLAT SERIES

ENERGY EFFICIENCY IN AN ELEGANT DESIGN

- **Stylish design with a flat body**
- **Small junction box provides a large wiring area in every flush-mounted socket**
- **Automatic parameterisation of light ballasts (DALI broadcast)**
- **Parameterisation with 47 communication objects (KNX)**

Whether it is 230 V, DALI or KNX: automatic presence-dependent control of ventilation can make a valuable contribution to improving quality of life and energy efficiency. ESYLUX can therefore supply presence detectors with a simple HVAC output or a DALI actuator as accessories for all conventional control technologies.

Product group / product name		Item no.	Product description	Dimensions
KNX				
	PD-C 360i/8 KNX UP	EP10427404	KNX presence detector with 360° field of detection for ceiling mounting	(Ø) 108 x (H) 62 mm
	PD-C 180i KNX	EP10426445	KNX presence detector with 180° field of detection for wall mounting	(L) 70 x (W) 70 x (D) 55 mm
	PD-C 360i/12 mini KNX	EP10426162	KNX mini presence detector with 360° field of detection for recessed ceiling mounting	(Ø) 58 x (H) 70 mm
	PD-FLAT 360i/8 ROUND WHITE KNX	EP10451706	KNX design presence detector, range approx. 8 m in diameter for flush mounting	(Ø) 94 x (H) 30 mm
DALI				
	PD-C 360i/24 DUO DALI (+ Actuator)	EP10427459	DALI presence detector with 360° field of detection for ceiling mounting	(Ø) 108 x (H) 70 mm
	PD-C 360i/8 mini DALI (+ Power supply + Actuator)	EP10427510	DALI mini presence detector with 360° field of detection for ceiling flush mounting	(Ø) 33 x (H) 60 mm
	PD-FLAT 360i/8 ROUND WHITE DALI (+ Power supply + Actuator)	EP10427541	DALI design presence detector, range approx. 8 m in diameter for flush mounting	(Ø) 94 x (H) 30 mm
	PD-FLAT 360i/8 LARGE ROUND WHITE DALI SET (+ Actuator)	EP10428661	DALI design presence detector, range approx. 8 m in diameter for flush mounting	(Ø) 104 x (H) 30 mm
ON/OFF				
	PD-C 360i/8plus	EP10425042	Presence detector with 360° field of detection for ceiling mounting	(Ø) 108 x (H) 62 mm
	PD-C 360i/24 plus	EP10425288	Presence detector with 360° field of detection for ceiling mounting	(Ø) 108 x (H) 70 mm
	PD-C 360i/24 DUOplus-FM	EP10426803	Presence detector with 360° field of detection for ceiling mounting	(Ø) 108 x (H) 70 mm

Product group / product name		Item no.	Product description	Dimensions
ACCESSORIES				
	POWER SUPPLY 200mA DALI	EC10430008	Power pack for supplying power to DALI operating units or DALI control modules that do not have their own power supply	(L) 44 x (W) 45 x (D) 25 mm
	ACTUATOR FULL AUTO C3 DALI	EP10427473	Fully or semi-automatic switch actuator for channel 3	(L) 45 x (W) 45 x (D) 25 mm

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