

Intelligent lighting

References





Lycée Sud Loire Clisson school building, France

The school of the future.

In the ultra-modern Energy-Plus building of the new grammar school in Clisson/France intelligent lighting control from STEINEL PROFESSIONAL ensures efficient lighting.

The new school building for 600 students with affiliated boarding school was completed in October 2013. The building's specific structural design allows it to produce more energy than it needs. Heat recovery and the use of solar and wind power generate the energy that is required. Sensors from STEINEL PROFESSIONAL have been installed to make the lighting as efficient as possible.

Romuald Pannetier, project manager

"The sensors from STEINEL PROFESSIONAL work perfectly. Light is only ever switched on when it's actually needed. The rest of the time it stays off. That gives us a good feeling."

The right sensor for each particular room

As innovation and technology leader in intelligent lighting control, STEINEL PROFESSIONAL offers the right sensor for any application. This makes sure customers always get the best solution. Following a phase of careful planning that benefited from copious active support from the project department at STEINEL France, this is the result that everyone agreed on:

The IR Quattro DIM presence detector was chosen for detecting even the smallest of movements in the classrooms. In the larger halls and conference rooms, the planners chose the high-resolution IR Quattro HD DIM presence detector that is capable of identifying human presence on an area of 64 square metres

per sensor. The ISD360 motion detector has been used in the smaller rooms, with the IS2180-5 motion detector being fitted in the stairwell. Given the particular advantages of high-frequency technology, the HF360 motion detector was selected for automatically controlling light in the WC facilities.

Constant-lighting control through DIM interface

Constant-lighting control means that the sensor makes sure there is only ever as much light in the room as the light-level setting prescribes. No artificial light is turned on if daylight is sufficient. If the level of light falls below the setting, the sensor automatically activates artificial lighting on detecting movement. Only as much artificial light is added that is necessary to reach the light level required – and no more.

Presence detectors from STEINEL PROFESSIONAL provide a square detection zone

The square detection zone is a key characteristic feature of the IR Quattro range from STEINEL PROFESSIONAL. Conventional detectors have a circular detection footprint. This can result in blind spots. With their square lens, IR Quattro presence detectors cover rooms without overlapping and without gaps. The patented mechanical adjustability of reach without any loss of quality is unparalleled.

Presence detectors from STEINEL PROFESSIONAL are predestined for sedentary activities. They reliably register even the smallest of movements, such as typing on a keyboard or writing during classwork.



Plug & Play – IS D360

This sensor has been used in Clisson for controlling light in smaller rooms. It is designed to fit in all standard surrounds of recessed ceiling spots. This means it can be installed almost invisibly in suspended ceilings. From here, it can watch over a radius of up to 8 metres.



Flat against the wall and extremely efficient

With a reach of up to 20 metres, the IS2180-5 controls the automatic lighting in the school's stairwells. From the wall, the slim-line motion detector with a coverage angle of 180 degrees keeps watch over use of the stairs while also providing the capability of adjusting the detection zone to suit any specific situation.

Active motion detection

Invented by STEINEL, high-frequency technology is also capable of detecting movements behind thin walls made of wood or plasterboard. This is why the HF-360 sensors have been installed in the school's WC facilities. Although the sensor is located in the washroom, it is also in a position to identify persons in any of the WC cubicles.

HF360

- 360° high-frequency sensor
- Detects through thin walls and suspended ceilings
- Detection irrespective of temperature
- Electronically adjustable reach



IR Quattro DIM

- Infrared presence detector
- 1760 switching zones
- 16 sq.m. presence detection zone
- Mechanical scalability without loss of detection quality







Sky Tower Wroclaw, Poland

Automatic light.

In the Sky Tower in Wroclaw, Poland's tallest building, over 1000 special corridor sensors from STEINEL PROFESSIONAL ensure on-demand, energy-efficient lighting control.

Completed at the end of 2012, the Sky Tower complex not only includes offices and a shopping centre but also accommodates 236 apartments. The building's users and residents reach their premises through a large number of corridors and passageways. The lighting concept stipulated on-demand lighting control. Sensors from STEINEL PROFESSIONAL were to minimise the lighting's energy consumption.

Adam Szarnicki from the planning company in charge

"The sensors from STEINEL PROFESSIONAL really are excellent. Their sensor technology and truly above-average reach left us in no doubt. This way, our customers not only save energy but also investment and maintenance costs."

Sensors for corridors

As corridors and passageways come with an architecture all of their own – they are usually narrow and long – dedicated corridor sensors from STEINEL PROFESSIONAL were to be used in the Sky Tower. Their detection field is tailored perfectly to this specific spatial situation. Given the scenario inside the building, it was decided to use the Dual HF presence detector from the Presence Control PRO range as well as the IS345 passive infrared motion detectors.

Broad vision from the ceiling

As a dedicated corridor sensor, the Dual HF is fitted with two high-frequency sensors. With a reach of up to 10 metres, these two sensors sit back to back to cover both corridor directions. In total, this means a single Dual HF sensor can survey up to 20 metres of corridor. The sensor's reach setting can be infinitely adjusted all electronically.



Active detection

The Dual HF uses high-frequency technology invented by STEINEL PROFESSIONAL for sensing room use. As an active system, the sensor emits HF waves and receives the echo reflected by walls and objects. A person in the detection zone alters the echo, with the Dual HF responding with a switching signal. The HF-sensor's particular responsiveness switches light on without any delay whatsoever.

Detection from a great height

The IS345 motion detector is predestined for watching over high corridors and passageways. As a passive infrared sensor it has a motion detection zone of 20 x 4 metres across the sensor. The sensor can be precision-adjusted using shrouds and by repositioning the lens.

User-friendly functions for intelligent lighting

Practical functions make easy work of matching the IS345 to the local situation and preferences. The ambient light level at which the light is switched on can be defined by the teach-in mode. It identifies sensors connected in parallel and deactivates their light-level detection capability just as easily. The IS345 has potentiometers for adjusting the lux and time settings.



Dual HF

- High-frequency corridor sensor
- Reliable detection over 20m
- Detection irrespective of temperature
- Detects even the smallest of movements whichever direction it is approached from
- Electronically adjustable reach



IS345

- Infrared corridor sensor
- For mounting at a height of up to 4 m
- Reliable detection over 12 m



Al Maktoum International

Dubai
Airports

Al Maktoum International Airport, Dubai

Energy efficiency vision.

Cutting-edge KNX presence detectors from STEINEL PROFESSIONAL are the key to providing automatic and efficient lighting at the world's future largest airport in Dubai.

The first passenger terminal at Al Maktoum International Airport went into service in October 2013. Building automation using the standardised KNX BUS system was to control the lighting, as one of the most important building functions, on a centralised basis and in the most energy-efficient manner possible.

Modern building automation

Using intelligent presence detectors to automate lighting can provide energy savings of up to 80 per cent. To achieve this, the precision KNX sensors from STEINEL PROFESSIONAL were chosen for the new airport. The KNX detectors have the job of controlling the lighting system connected to them in the passenger terminal. In corridors and passageways this is done by the dedicated Dual HF KNX corridor sensor. The IR Quattro HD KNX was chosen for controlling the lighting in offices and the kitchen area.

Michael Enning, General Manager of Steinel Middle East

"The Dual HF KNX corridor sensor's huge range convinced everyone involved. Corridors of up to 20 metres in length can be covered with just a single sensor. This meant it was possible to keep the number of sensors low and cost-effective yet still provide complete and exact coverage."

Coverage in two directions

The Dual HF KNX was developed specifically for detecting movement in corridors. This is why its detection field is geared to the particular architecture of corridors and passageways. As the only one of its kind, it is equipped with two HF-sensors. Each watches over one corridor direction. With just one Dual HF this makes it possible to cover a total length of 20 metres.

Detecting the slightest movement

The IR Quattro HD KNX was absolutely predestined for detecting predominantly sedentary activities of the type taking place, for example, in the air terminal's offices. Thanks to its very high resolution, it reliably detects even the slightest of movements, such as typing on a computer keyboard.

KNX control

KNX detectors from STEINEL PROFESSIONAL are particularly easy to install and configure. All settings can be configured and changed by ETS software or directly via panel or smart phone. As a result, minor changes can easily be made by the in-house technician – saving time and money, an advantage that's very much appreciated in Dubai.



Dual HF KNX

- High-frequency corridor sensor
- Reliable detection over 20 m
- Detection irrespective of temperature
- Detects even the smallest of movements whichever direction it is approached from
- Electronically adjustable reach



IR Quattro HD KNX

- Infrared presence detector
- 4800 switching zones
- 64 sq.m. presence detection zone
- Mechanical scalability without loss of detection quality





Dalberg Höfe, Fulda

Clever lighting in the courtyards.

SensorLights from STEINEL PROFESSIONAL provide automatic, energy-efficient lighting in the access zones and outdoor areas at the Dalberg Höfe development in Fulda.

Built in 2012, the Dalberg Höfe building complex combines several buildings that accommodate retail floor space, offices and apartments. The various buildings are interlinked by so-called "Höfe", German for courtyards. Several stairwells and corridors provide easy access to the various areas. Lighting throughout the access and outdoor areas was to be controlled on demand. Apart from energy efficiency, convenience, safety and security were to come first.

Oliver Kropp, developer

"The practical versatility and performance of the indoor and outdoor SensorLights from STEINEL PROFESSIONAL truly impressed us. In no way complicated, they take every effort out of providing automatic lighting. It really couldn't be easier."

Automatic lighting specialist

STEINEL invented the first sensor light back in 1987. Since then, work has never stopped on driving forward the development of innovative and sensor-switched lights that meet the particular demands of the contract segment. Outdoor SensorLight L360 plan from STEINEL PROFESSIONAL is used everywhere outside at Dalberg Höfe. It aims to provide light as and when it is required. In the stairwells and corridors, the building owners opted for the RS PRO 2000, a versatile SensorLight from STEINEL PROFESSIONAL's tried and proven RS PRO system.

Light control outdoors

The L360 plan outdoor SensorLight combines motion detector and light in an all-inclusive lighting system. The wall light's classic design goes well with any surroundings. It is equipped with a 360-degree infrared sensor. It responds to human movements within a distance of 8 metres all round, switching light on automatically. As many as 5 lights can be interconnected by cable.



Flexibility from intelligent programmes

Various user-friendly programmes, such as twilight threshold or stay-ON time, can be set directly on the L360 plan's removable sensor. This makes later adjustments really easy.

High-frequency indoors

The RS PRO 2000 satisfies the demands of professional lighting management to perfection. The integrated HF-sensor detects even the slightest movement regardless of ambient temperature or direction of movement. The light switches on instantly. The impact-resistant RS PRO 2000 is designed for two low-energy lamps of 26 watts each. Two chip-controlled electronic ballasts make the light respond very quickly.

Modular extension capability

Various optional modules easily match the RS PRO 2000 to the specific demands at the point of application. The optional wireless module makes it possible to create complex interconnected groups involving any number of lights. Practical plug-in modules are also available for automatic LED orientation lighting or emergency light.



RS PRO 2000

- Indoor SensorLight, 2x26W TC-DEL
- Integrated 360° high-frequency detector
- impact-resistant shade, polycarbonate (IK 07)
- Slave version without sensor, optional wireless interconnection



L 360 plan

- Outdoor SensorLight, 1x26W TC-DEL
- 360° infrared sensor
- 4 programmes for basic brightness and soft start



Stuttgart city library

Intelligent lighting for intelligent minds.

In Stuttgart's new city library over 200 KNX high-frequency presence detectors from STEINEL PROFESSIONAL control the lighting for maximum energy efficiency.

The new city library in Stuttgart was officially opened in October 2011. Taking up no less than 20,000 sq.m. of floor space, the newly constructed media world is spread over 11 storeys. Sensors from STEINEL PROFESSIONAL control all of the library's lighting in relation to use and daylight.

Marc Lorch, library user

"The level of lighting in the library always stays the same no matter whether it's sunny outside or in the evening. As a visitor, I find that very pleasant because it creates an atmosphere here inside that always stays bright and inviting."

Centralised building automation

When the library was built, it was decided to install a KNX-based building automation system as a way of perfectly controlling all the main building functions, such as lighting. KNX sensors from STEINEL PROFESSIONAL can be integrated throughout the building system quickly and easily. The HF 360 KNX from STEINEL PROFESSIONAL's tried and proven Presence Control PRO range was chosen for detecting movement in the library. It not only has the task of minimising energy consumption but also of providing the perfect balance of natural and artificial light.

Planning with RELUX

To optimise the number and positioning of the presence detectors, the building's planners were provided with support from RELUX software. RELUX software can be used for planning all presence detectors from STEINEL PROFESSIONAL. This software contains the product data for all sensors. In just a few clicks of the mouse, professional users are provided with a perfect list of their sensors and can even display each sensor's detection zone in RELUX as well.

360 degrees in view

The HF 360 is particularly slim because using HF technology it doesn't work with a lens. From the ceiling, it detects all movements in a full-circle radius of 1 to 8 metres. This can be adjusted exactly as required. Another particular aspect of HF technology: no matter how the sensor is approached – the quality of detection is always equally as good. Unlike PIR technology, there is no difference between tangential and radial detection.

Penetrating detection

High-frequency waves have the advantage of being able to penetrate room elements made of glass or even stud walls. This means the HF 360 can be installed out of view behind suspended ceilings without impairing detection quality. This way, visitors to Stuttgart city library can't see the sensors – but the sensors give them pleasant task lighting.



HF 360

- 360° high-frequency sensor
- Detects through thin walls and suspended ceilings
- Detection irrespective of temperature
- Electronically adjustable reach



Energy-Plus house, Berlin

Home living self-sufficient in energy.

In the Efficiency House Plus with Electromobility in Berlin, presence detectors from STEINEL PROFESSIONAL optimise the energy that goes on lighting.

Sponsored by the German Government, the pilot project was launched in early 2012. It was to demonstrate new and forward-pointing ways of living in an energy-efficient, carbon-neutral home without foregoing modern convenience. The building's particular structural design and the use of various regenerative energy sources leave it with an energy surplus. This was used for re-charging electric vehicles.

Petra Michaely from the planning team

"I think the combination of innovative architecture and energy-efficient technology is absolutely brilliant. That's just how I imagine what living will be like in the future."

Innovative lighting control

The innovative presence detectors from STEINEL PROFESSIONAL provide automatic and sensor-switched lighting in the Efficiency House Plus. The IR Quattro from the Control PRO presence detector range was chosen for the project. As a result of its detection qualities and high-resolution sensor system, it reliably detects even the smallest of movements with absolute precision. Light only switches on automatically in a particular area when the detector identifies it is being used by the house's occupants and light is actually needed.

Passive infrared for detecting movement

The IR Quattro uses passive infrared technology to identify when a room is being used. It perceives the heat radiated from the human body, converts this into a switching signal and turns the light on.

Detection zone matches typical room shape

The IR-Quattro's highly perceptive sensor system provides a presence detection zone of 16 sq.m. and even notices when someone is typing on a keyboard. Just like all IR-Quattro models from STEINEL PROFESSIONAL, the IR Quattro has a square lens too. This provides a detection zone of typical room shape which means absolutely nothing is overlooked. Every last inch of a room is covered without leaving any blind spots. The patented mechanical adjustability of reach without any loss of quality is completely unprecedented. This means the IR Quattro can be adjusted to suit the particular situation at the point of application.

Flexibility in building automation

In the same way as all presence detectors from the Control PRO range, the IR Quattro is available with all common interfaces too, such as KNX or DALI. So there are no problems integrating it into a centralised building control system.



IR Quattro

- Infrared presence detector
- 1760 switching zones
- 16 sq.m. presence detection zone
- Mechanical scalability without loss of detection quality



Residential Complex, Helsingborg, Sweden

Light where it's dark.

The particularly energy-efficient multi-family residential complex in Helsingborg/Sweden uses an all-inclusive sensor-switched LED lighting solution from STEINEL PROFESSIONAL for providing intelligent lighting in the corridors and stairwells.

Completed at the end of 2012, the residential complex is made up of 132 apartments. Stringent demands were made on the building's energy consumption. The lighting in the common areas was to be efficient and energy-saving in design. No lighting was to be left on permanently when no one is around.

Kerstin Olsson, who lives in one of the apartments

"The light switches on all by itself at exactly the moment I enter the stairwell. I don't even have to press a switch. That really is very convenient. And it makes me feel safe."

Modern lighting management

Intelligent and innovative lighting control in this residential complex comes from 182 LED SensorLights of type RS PRO LED S1. It can be installed either as a wall or as a ceiling light. Various intelligent functions reliably provide energy-efficient light whenever corridors or stairwells are actually being used and light is really needed.

Identifying room use by high-frequency

The 5.8 GHz high-frequency (HF) sensor integrated in the luminaire responds to the slightest of movements. When a resident enters the corridor or stairwell, the light immediately switches on automatically without any delay whatsoever. The integrated sensor can be adjusted to suit any requirement, reliably detecting any movement in a radius of up to 8 metres in all directions around the light.

Integrated wireless interconnection

Where several lights need to be interconnected, this can be done very easily by means of the 868 MHz wireless interconnection capability already integrated in the RS PRO LED S1. All interconnected lights then work and respond simultaneously.

Intelligent lighting

Various user-friendly settings can be made on the luminaire itself. The light level at which the RS PRO LED S1 is to switch on can be set to any value between 2 and 2000 lux. Stay-ON time allows the user to decide how long the light is to remain on for after identifying the last movement. A further option is basic light level at 10 per cent. This provides dimmed illumination in an area so that it's not completely dark, for instance, when someone enters the corridor or stairwell. When the HF-sensor detects a movement, the light immediately switches to maximum output. Once the stay-ON time has elapsed, it returns to the dimmed lighting level. The RS PRO LED S1 has been designed so that it can be perfectly matched to any given situation or requirement with very little effort.

Never change a bulb again

The LED lighting system in the SensorLights from STEINEL PROFESSIONAL is protected from overheating by a special configuration and Active-Thermo-Control. This makes sure optimum lighting is always provided and the LED lighting system gives a useful life of approx. 30 years. Gone are the days when you had to change a bulb. The LED lighting system's lifespan is not affected either by how often it is switched on and off, in the way that conventional bulbs are. This means: no maintenance costs, just intelligent, reliable and trouble-free lighting.



RS PRO LED S1

- Indoor LED SensorLight
- 16W for a maximum of 972 lumens
- Integrated 360° high-frequency detector
- Optional 10 % basic light level
- Integrated bi-directional wireless interconnection capability
- Active Thermo Control



23 Marina, Dubai

Energy-efficient living.

At the exclusive address, 23 Marina, in Dubai stands one of the world's tallest residential buildings. In this luxurious and architecturally remarkable building 375 infrared ceiling and corridor sensors from STEINEL PROFESSIONAL provide intelligent lighting control.

The highrise building, which was completed in January 2012, has 291 apartments spread over 90 floors. The lighting in the spacious lobby areas, where the 8 lifts are, and in the building's many corridors was to be controlled in line with use. It is here that sensors from STEINEL PROFESSIONAL ensure efficiency and save energy.

Rasoul Moghaddam, integrator at 23 Marina

"With light only switching on automatically when it's really needed, we can save a huge amount of energy. This not only cuts electricity costs but helps to conserve the environment too."

The right choice

STEINEL PROFESSIONAL has the right sensor for any application. Before making a choice, however, it is necessary to carry out a precise analysis of which detection tasks the sensor needs to perform and what the scenario involves at the point of application. The particular architecture at 23 Marina demands sensors that are also capable of delivering a precision result from elevated installation heights and watch over expansive areas. To make sure this brief is perfectly met, the decision went in favour of infrared ceiling sensor IS3360 as well as the IS345 from STEINEL PROFESSIONAL as a dedicated motion detector for corridors and passageways.

Lighting as a matter of warmth

Both of the sensors selected use passive infrared technology to detect room use. They perceive the heat radiated from the human body and then activate light. PIR sensors work well if they come with high resolution and the sensor's lens is matched to the specific room situation. This is precisely the case with sensors from STEINEL PROFESSIONAL.

Targeted detection in the corridor

Designed as a dedicated IR corridor sensor, the detection field of the IS345 is tailored to the particular architecture of corridors and passageways. It has a formidable reach of 20 metres in length.

All-round vision from the ceiling

The IS3360 is a 360-degree, all-round motion detector for watching over every inch of large areas in rooms of up to 4 metres in height. It can see a particularly long way, detecting any movement within a distance of 20 metres all around the sensor. This means a single sensor can watch over an area of up to 1000 sq.m.



IS345

- Infrared corridor sensor
- For mounting at a height of up to 4 m
- Reliable detection over 12 m



IS3360

- 360° infrared ceiling sensor
- For mounting at a height of up to 4 m
- Covers large areas of up to 1000 sq.m.



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