

A Warm Welcome from



UK Manufacturer of
Lighting Controls

Innovative Lighting Management Systems



Honeywell

The market for Lighting Control by presence detection and photocell is growing continually both as a result of legislation and also as the need for energy efficient electrical installations becomes more important

A further benefit of these methods of control is the flexibility they offer to the end user: Layouts and light levels can be changed without the need for expensive wiring alterations

There is a variety of equipment available for lighting control from simple control for small areas to large systems built on the lines of Building Management Systems. Neither option requires a complex installation process and refurbishment of existing installations can be easily achieved

Control for Commercial Lighting Installations

Retrofit Lighting Management

Coping with changing requirements

Maximising Energy Savings

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Movement Sensors – Wide range to suit all applications

- Movement detectors automatically switch lights on when they are needed and off when they are not.
- For areas with good natural light certain sensors incorporate photocells to regulate light output accordingly.
- Includes all three major types of presence detection:
 - Passive Infrared
 - Ultrasonic
 - Microwave
- Suitable for small applications, such as private offices, to warehouses with detection up to a 60m x 60m area.



**A range of Luminaire Controllers
using Presence Detection and Photocell
for efficient use of lighting**



Products are designed to be incorporated into the luminaire either within the louvre or within an infill panel. Alternatively, the luminaire controller may be ceiling mounted adjacent to the luminaire

LightSpot Luminaire Controllers

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Infrared Remote Programming

Silver Series LightSpot Luminaire Controllers can be remotely programmed using the HP10 LightSpot Programmer

Programmable features

Power up state	ON or OFF
Entry Scene	Any level or regulating
Presence detector	Auto or Semi-auto
Off delay following last observed movement	5 mins to 35 mins or 10 secs for walk testing



LightSpot Luminaire Controllers

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Local Override Control

ON/OFF/Raise/Lower

**Reverts to programme settings
following time delay**



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 **Ex-Or**
Making light work

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Controls

- **Controls should be provided to avoid unnecessary lighting when**
 - Daylight levels are adequate
 - Or the area is unoccupied
- **Risk assessment may be required for automatically switched systems**
 - Safety may take precedence over energy efficiency
- **Local switching can be supplemented by automatic controls**
 - Manual On/Off Automatic OFF

Extended Lamp Life

- **Increased On/Off switching by occupancy sensors reduces fluorescent lamp life from 34 000 to 30 000 hours.**
- **But sensors dramatically increase lamp longevity from 3.9 years for always-on lamps to 6.8 years by not wasting lamp life during unoccupied hours.**
- **Reduced frequency of lamp replacement over time and associated decline in maintenance costs provides significant savings.**

Presence Detection

Are we really doing presence detection?

No: We're doing movement detection. Proper presence detection would work whether you're moving or not.

Examples of proper presence detection:

RFID tags

Inductive loops

Access control [counting people in and out of an area]

In the meantime, we're stuck with Movement Detection.....

Movement Detection

Can be divided into two categories: **Active and Passive.**

Active Presence detection

Ultrasonic

Microwave

Active infrared (beam break)

Passive Presence Detection

Passive Infrared (PIR)

Choice of Technology

- Cost
- Balance between quality of **Detection** to cost of **No Detection**
- Precision of detection
- Convenience to implement
- Client perceptions

Passive Infrared (PIR)

Works on movement of objects of differing heat to surroundings

- **Low cost**
- **Compact**
- **Easy to implement**
- **Reasonable quality presence detection**
- **The best for low incidence of false detections**
- **Works well in electrically noisy environment**
- **Very good definition of detection area**
- **Doesn't see through glass or thin office partitions**
- **No unwanted interaction between similar units**



Microwave

Works on Doppler principle and does not require transmission medium. Ex-Or uses 10.7GHz (X-band)



- Relatively low cost
- Very high quality presence detection
- Poor for low incidence of false detections
- Not affected by air movement but affected by moving metal
- Large definition of detection area
- Sees through glass or thin office partitions – sometimes this can be used to advantage (mount above ceiling tile?) – if not wanted can be tuned down (sensitivity and range adjustments)
- Potential problem of interaction between similar units – resolved by good quality management
- Not really any potential unwanted interaction with other equipment

Ultrasonic

Works on Doppler principle and requires transmission medium (air).
Ex-Or uses 40kHz

- Relatively low cost
- High quality presence detection
- Poor for low incidence of false detections
- Affected by air movement which is advantageous in corridors (door)
- Not good in electrically noisy environment
- Medium definition of detection area
- Doesn't see through glass or thin office partitions
- Potential problem of interaction between similar units



Comparison of Presence Detection Technologies

	Technology		
Property	PIR	Ultrasonic	Microwave
Cost	Low	Medium	Medium
Detection	Good	Very good	Excellent
No Detection	Excellent	Adequate	Adequate
Precision	Excellent	Adequate	Adequate
Implementation (engineering)	Easy	Medium	Medium

Area Applications

Type of Space	Examples
Owned	Office, Workshop, Consulting Room
Shared	Open Plan Office, Production Area
Temporarily Owned	Meeting Room, Classroom
Occasionally Visited	Store Room, Toilet
Un-Owned	Corridor, Stairs
Managed	Terminals, Restaurant, Shops

Choice of control also dependent upon whether day lit and high or low occupancy

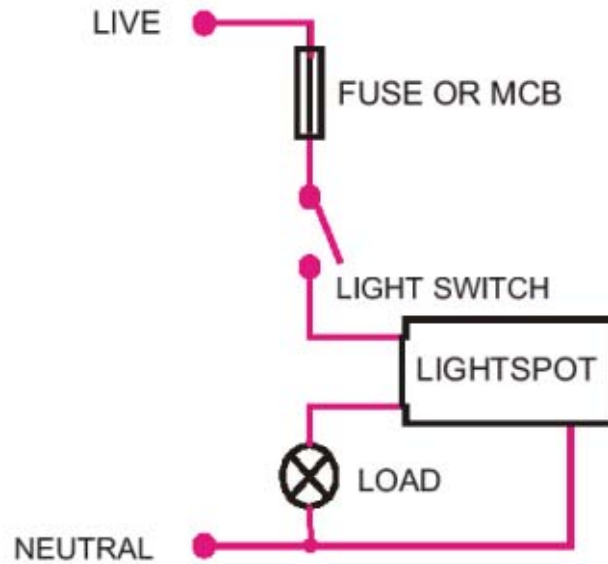
Application of Detector

Type of Space	Recommended Suitable Control
Owned	'Absence' with Flexible Manual
Shared	Automatic Photocell Dimming
Temporarily Owned	'Absence' Detection
Occasionally Visited	Automatic Presence Detection
Un-Owned	Presence Detection & Photocell Switching
Managed	Scene Setting, Time Switching, Centralised Manual

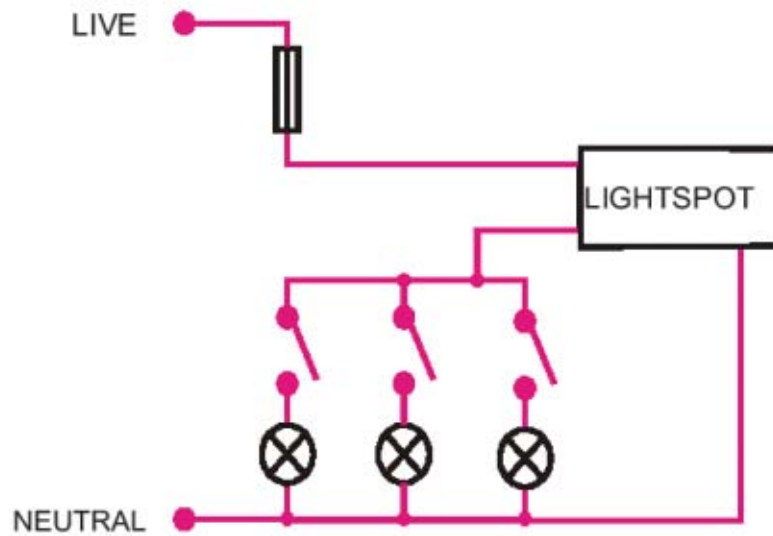
Choice of control also dependent upon whether day lit and high or low occupancy

Simplicity is King – why over complicate things?

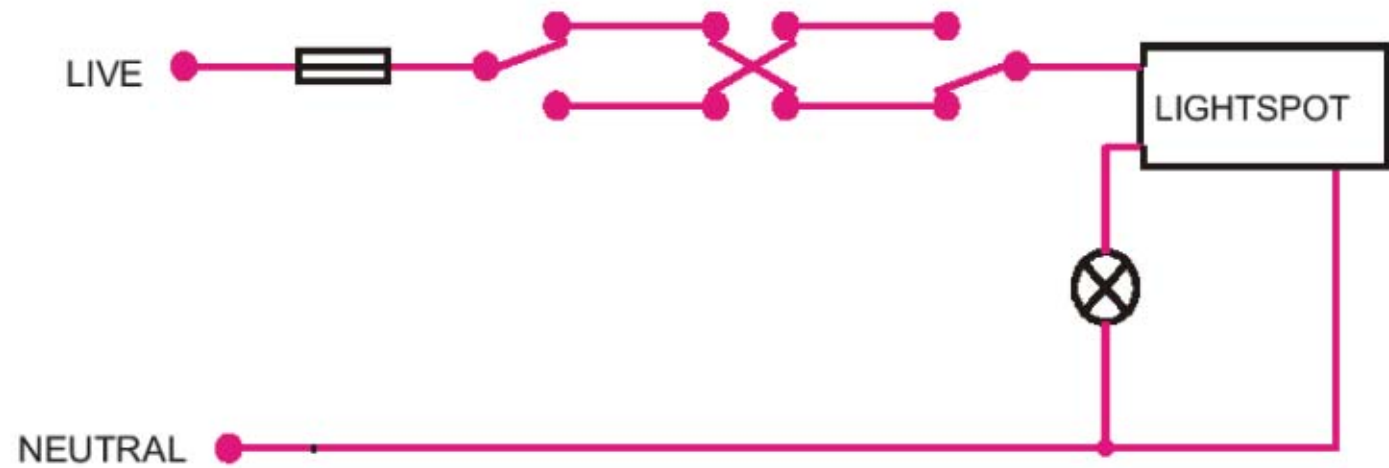
1. The main reason for adding controls is to save money therefore the simpler the control, the less to supply, install and maintain, the better the payback and savings.
2. The detector does not have to be 'networked' to provide savings but networks can assist with client peace of mind. For example, grouping luminaires to work together, adjacent corridor hold. Very little extra expense with Ex-Or Managed Lighting System
3. Daylight control can be easily achieved through combining presence detectors with photocells and manual override for individual occupant's requirements. Could be added where users still need control, for example whiteboard lighting in classrooms.
4. Retro-fit of controls can be in line with switches – picking up a local live feed to interrupt switch-lines etc



Controlling a load with one switch circuit.



Controlling a load with several switch circuits.



Controlling two or three way circuits.

Ex-Or's Proven Track Record – End Users

Tanfield offices
BP Aberdeen
Perth Prison
Polmont Young Offenders
Glasgow Primary Schools
Clackmannan Schools
West Lothian Schools
South Lanarkshire Schools
North Ayrshire Schools
Langside college
John Wheatley College
St Andrew University
Glasgow University
Strathclyde University
Edinburgh University
Etc, etc.

Thank You

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