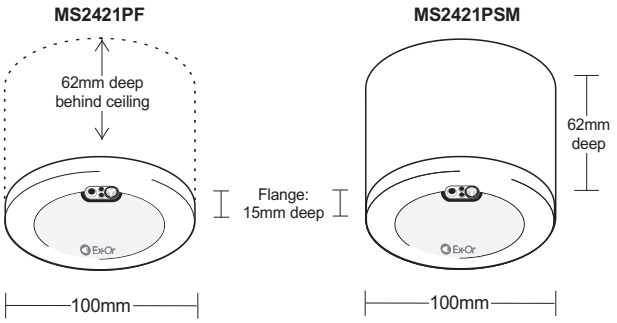
Dimensions



Technical Data

OPERATING VOLTAGE: 230V 50Hz (UK & Europe)
PRODUCT RATING & RECOMMENDED CIRCUIT PROTECTION: 10 Amps
MAXIMUM RECOMMENDED LOAD: 6 Amps per output (not exceeding 10A in total)
TERMINAL CAPACITY: 2 x 2.5mm^2
PHOTOCELL: Adjustable 0 - 5000 lux (with a 20% reflective workplane)
OFF DELAY: 1 min - 96 hours using HP2000 (5 - 35 minutes using HP10)
RANGE: Approx 7m dia at 2.4m ceiling height
MAXIMUM RECOMMENDED MOUNTING HEIGHT: 3m
COLOUR: White
MATERIAL: Flame retardant PC/ABS
WEIGHT: 300g approx
IP RATING: 2X

Ex-Or

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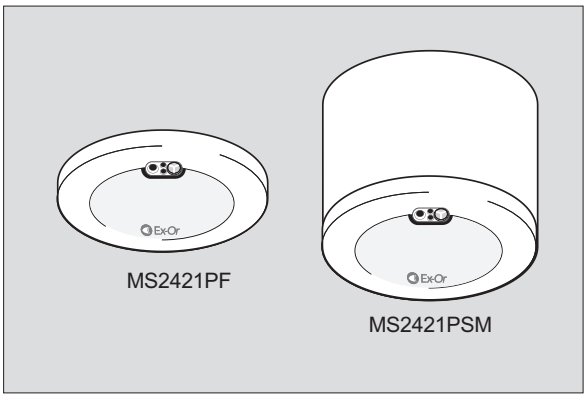
CE

At the end of their useful life the packaging and product should be disposed of via a suitable recycling centre.
Do not dispose of with normal household waste.
Do not burn.

W4308G

Ex-Or
by Honeywell

MS2421PF / MS2421PSM
Gold Series LightSpot with photocell



Installation and Commissioning Instructions

Note: HP2000 or HP10 required for commissioning

Gold Series LightSpot with photocell

Introduction

The Gold Series LightSpot is a high performance presence detector with photocell. In all operating modes, the photocell can hold lights off as a vacant area becomes occupied, and if the light level falls too low during the period of occupancy, the lights switch on. In 'Passive Mode' the lights do not switch off whilst the area is occupied no matter how much light is measured. In 'Active Mode' the photocell is able to switch the lights off whilst the area is occupied.

1. Location

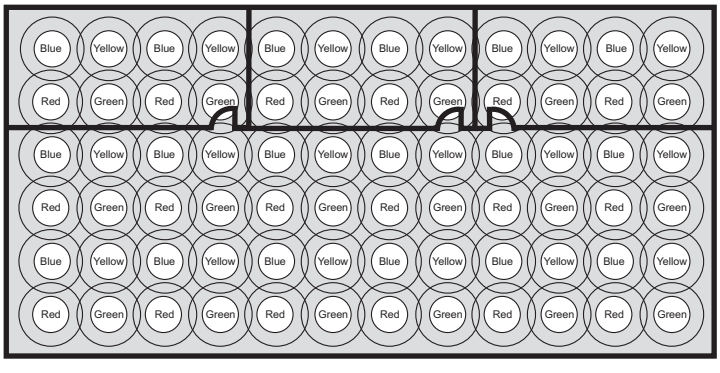
These detectors are extremely sensitive to movement; they must be mounted on a solid surface which has no movement whatsoever.

Please note that the Gold Series LightSpot uses microwave technology to detect occupancy and is not recommended for applications where there are large areas of metal, e.g. metal ceiling or panelling, as unpredictable sensitivity may result.

Take care when choosing a location for this equipment, since this type of device is capable of detecting large moving metal objects well beyond the normal range at which it is sensitive to human targets.

The units are colour coded according to four variations in operating frequency. Each type can be identified by different coloured stickers on the detector and carton. For reliable operation it is essential that units of the same colour code do not occupy adjacent positions in open-plan areas or in adjoining rooms (see example plan below).

Note: **Do not mount within 25cm of a luminaire.**
Do not position this product on a pitch narrower than 5m.



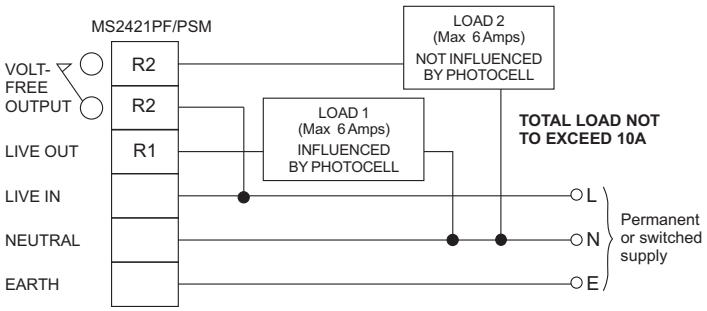
2. Installation

MS2421PSM - The housing may be secured to a hard surface or a BESA box. The unit fits into the housing with a simple bayonet action.

MS2421PF - Depth required behind ceiling: 62mm from front flange plus an allowance for the minimum bend radius of the cable. Sinking box fits into a 89mm diameter hole in ceiling tile or plasterboard ceiling. To avoid damage to ceiling tile, do not overtighten. No access above the ceiling is necessary.

3. Connection

The MS2421PF / PSM has two outputs, one influenced by the photocell, the other not.



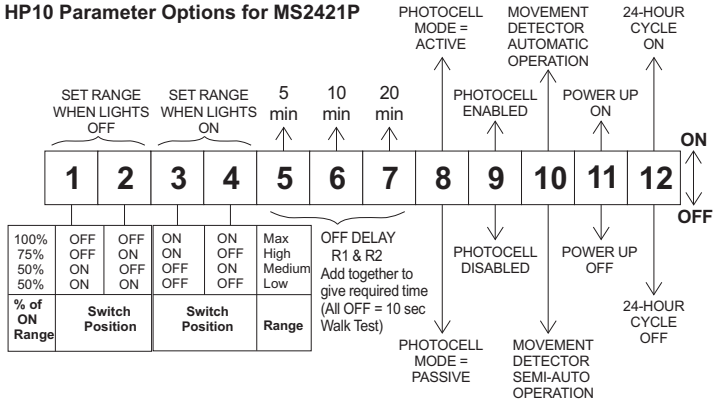
4. Commissioning

Detectors are supplied with factory default settings (Power-up On / Fully Automatic Operation / 20-minute Off Delay / No 24hr Cycle / Photocell Disabled) as shown below. They can be programmed using the MLS Digital Programmer with LCD display (HP2000) or the LightSpot Programmer (HP10) incorporating 12 dil switches.

Factory Default Settings

Parameter	Options	Default	Programming Notes
POWER UP*	ON/OFF	ON	Each of these settings can be re-programmed, if desired, by use of the infrared programming tool HP2000. * Selected parameters shown with an asterisk are re-programmable with the HP10.
RESPONSE*	Auto/Semi-auto	AUTO	
R1 OFF DLY*	1 min - 96 hours (5-35 mins with HP10)	20 mins	
R2 OFF DLY	1 min - 96 hours	20 mins	
24 HOUR CYCLE*	ON/OFF	OFF	
ON RANGE*	MAX, HIGH, MED or LOW	HIGH	
OFF RANGE*	100%, 75% or 50% off ON Range	75%	
ENTRY SCENE	Scn 1 - R1 On & influenced by photocell, R2 On Scn 2 - R1 On & influenced by photocell, R2 Off Scn 3 - R1 Off, R2 Off Scn 4 - R1 On, R2 Off Scn 5 - R1 On, R2 On Scn 6 - R1 Off, R2 On	Scn 1	
PCELL MODE*	PASSIVE, ACTIVE, DISABLED	DISABLED	
SET-POINT LOW	0 - 1023	1000	
SET-POINT HIGH	0 - 1023	1023	

HP10 Parameter Options for MS2421P



HP10 Parameter Options

(Parameter designation for HP2000 shown in capitals)

Off Delay - OFF DELAY

The Off Delay may be set between 5 and 35 minutes. (Independent Off Delays of between 1 minute and 96 hours may be set for each output using the HP2000.) A 10-second Off Delay is available for walk-testing the product. In a typical office environment an Off Delay of 20 minutes is usually satisfactory

Movement Detector Operation (Automatic / Semi-Automatic) - RESPONSE

Where absence detection is required (i.e. the user manually turns lights ON if required but lights still turn off automatically once an area is vacated), semi-automatic operation can be set via the programmer. It should be noted that this mode of operation affects only the switched-live output, R1. Where semi-automatic operation is required on both outputs, please contact Ex-Or for assistance.

Power Up (On/Off) - POWER UP

Set to ON the detector will automatically switch its outputs on when Mains is applied. If set to OFF, the detector will power up without turning its outputs on, wait for 15 seconds and THEN look for movement. Only if the area is occupied will the outputs switch on at this time.

(Sensitivity) Range When Lights On / Lights Off - ON RANGE/OFF RANGE

Settings appropriate for the type of activity typical for the monitored area should be chosen. It is desirable to require a larger movement to switch lights on (i.e. when an area is entered) than to sustain the lights in an already occupied area. The On Range determines the sensitivity to movement when lights are on; Off Range is used to set a reduced sensitivity to movement when the lights have switched off.

Photocell Mode (Passive/Active/Disabled) - PCELL MODE

The MS2421P has an in-built photocell. The photocell does not affect the volt-free output, i.e. the volt-free output will turn on regardless of natural light levels when occupancy is detected. The photocell has three modes of operation - Passive, Active and Disabled. Its operational behaviour is governed by the setting chosen and by the values stored in the Upper and Lower thresholds (see diagram under Setting the Photocell).

Passive - The photocell will inhibit switch-on of the controlled load if sufficient natural light is available. It will not turn the load off whilst an area is occupied

Active - The photocell will turn the controlled load on and off as required whilst natural light levels fluctuate during a period of occupancy. This mode of operation operates in conjunction with a passing cloud timer (PCT). The PCT is asymmetrical in operation - the load will be switched on immediately that the light level falls below the lower set point, however, the load switches off only if the light level exceeds the upper threshold *continuously* for a period equal to the Off Delay.

Disabled - The photocell has no effect.

24-Hour Cycle (Yes/No) - 24 HOUR CYCLE

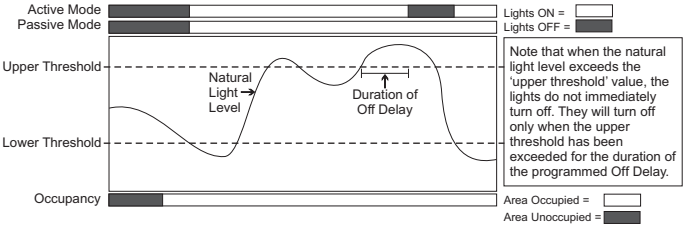
For use in 'Washroom Mode' only (see section 7). In this mode it is necessary to have a hygiene cycle (flush) if the area has been unoccupied for 24hrs. Select this feature and the output will switch on for the duration of the Off Delay once every 24hrs if the area remains unoccupied. Operates on R2 (if selected).

5. Setting the Photocell

1. If the lights are not already on, switch them on manually by pressing 'Utilities/User Remote/Luminaire+/OK' [HP2000], or 'Up' [HP10]. Fluorescent lights do not reach full output until up to 15 minutes after being switched on, so ensure that the lights are fully warmed up before continuing. This stage may be omitted if the intention is to operate the detector's photocell in Passive Mode only [the detector must have already been programmed to Passive Mode].
2. Wait until the time of day when the natural light level is at the point below which you *would* want the lights to be on, and above which you *would not* want the lights to be on.
3. Start the internal self-programming mechanism by pressing 'Utilities/Set Light Level/OK' [HP2000], or 'Store' [HP10]. The detector takes a measurement, adds a small amount and stores the value in the Upper Threshold. Then it turns the lights off, makes another measurement and stores the value in the Lower Threshold. The lights now switch on again to acknowledge a successful programming operation.

The two switching thresholds have now been set, and the difference between them is equal to the contribution made by the electric lighting; this is the perfect amount of hysteresis to ensure that the lights will not oscillate. The thresholds may be read back and fine-tuned if necessary using the HP2000. Please note that the values are non-specific units i.e. not lux.

Note: The light level perceived by the detector at the moment immediately prior to a Download operation [HP2000 only] is shown momentarily on the HP2000 screen following the Download; this is a useful mechanism for troubleshooting.



6. Walk-test Mode

Walk-test mode is used to check that the detector is operating as required. The short Off Delay enables the installer to check that lights are switching on when movements are made at the edge of the detection zone. It is easier to carry out a walk-test when the photocell is not holding the lights off.

1. Change the Off Delay to 10 seconds using the HP10 or press 'Utilities/Walk Test/OK' (HP2000 only).
2. Move around the area that is being controlled, stopping for 10 seconds to allow the lights to switch off, before moving and triggering the lights back on. Re-programme the desired Off Delay once testing is complete. Note: If the HP2000 was used to engage 'soft' walk test mode as described above, the programmed Off Delay will be automatically restored after 5 minutes.

7. Washroom Mode (24-Hour Cycle)

The unit may be used in conjunction with a 230V solenoid valve and a trickle valve or 'petcock' to effect a urinal flush system. Set the water flow rate by adjusting the petcock so that the cistern *just* fills within the chosen Off Delay period of the detector. Note that the urinal control operates on R2.

8. Hand-held Controllers

HP2000
MLS Digital Programmer

HP10
LightSpot Programmer

HC6
Two-button Hand-held Controller
(Note: HC5 Universal Hand-held Controller is also suitable for use with this detector.)

Important Additional Notes

1. Only suitably qualified personnel should install this equipment.
2. A means for disconnection must be incorporated in the fixed wiring in accordance with the current wiring regulations.
3. This equipment switches lights no more frequently than would a responsible human occupant. However, manufacturers of some particular lighting types (e.g. '2D' luminaires) may specify a maximum number of switching cycles in order to achieve a predicted lamp life. Please check with the manufacturer of the luminaires to ensure that they are compatible with automatic controls in this respect.