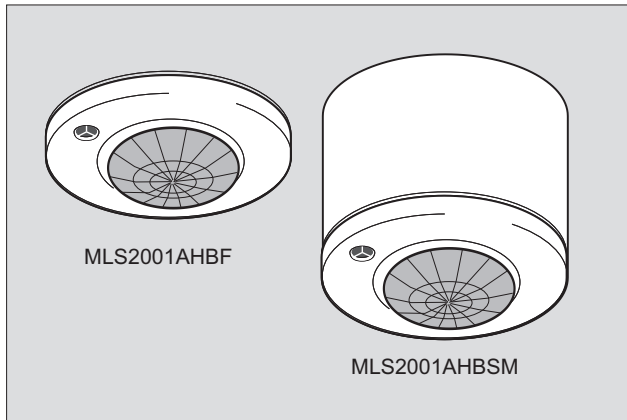




by Honeywell

**MLS Digital Hi-Bay Detectors  
MLS2001AHBF & MLS2001AHBSM  
for use with 1-10V analogue ballasts**



**Installation and Commissioning  
Instructions**

Note: HP2000 required for commissioning

## MLS Digital Hi-Bay Detector: MLS2001AHBF & MLS2001AHBSM for 1-10V analogue ballasts

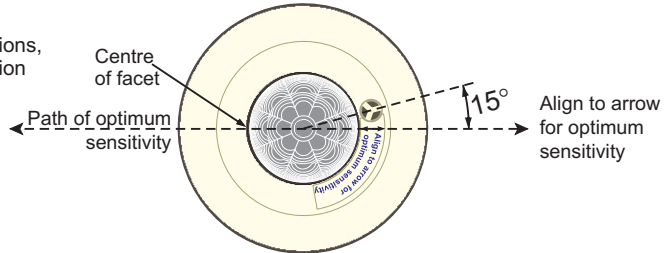
Only suitably qualified personnel should install this equipment.

### Fixing

**Flush Version:** 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. Note: If the sinking box is being fitted to a hard substrate such as metal, increase the hole size to 91mm. To avoid damage to ceiling tile, do not overtighten. No access above the ceiling is required.

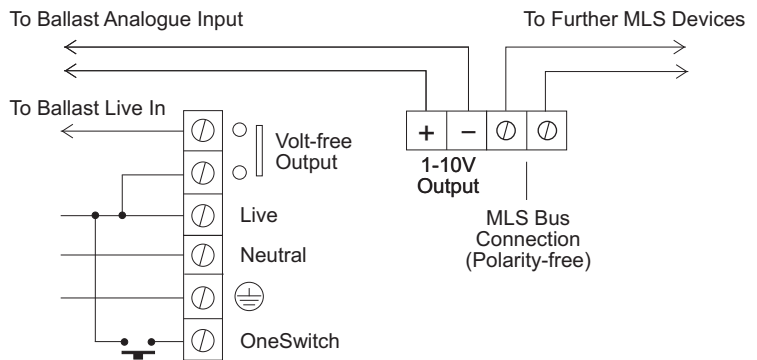
**Surface Version:** The housing may be secured to a hard surface or a BESA box. The unit fits into the housing with a simple bayonet action.

For aisle or corridor applications, there is an optimum orientation for approach:



Note: When operating in 'Regulating Photocell' mode, a closed feedback loop is formed by the luminaire, the reflective surface beneath, and the photocell. For this control loop to function correctly, the photocell must have a good view of the reflected light only from the luminaire(s) under its control – NOT from adjacent luminaires not under its control. This means that the higher the detectors are mounted, the further apart they must be in order to ensure that they see mostly 'their own light'. Therefore, it is recommended that detectors are mounted on a pitch not less than 50% of the mounting height when using the regulating photocell function.

### Connection



The MLS Bus must be connected to the MLS Bus Network. An MLS Bus Power Supply is required for each network of up to 200 MLS devices. Refer to the MLS Bus Power Supply Installation Instructions before commencing any bus wiring. It is imperative that the MLS Bus is wired in the correct type of cable. Normally this will be 1.5mm<sup>2</sup> unscreened twisted pair. See Application Note AN4001 for details. **Do not connect mains to the MLS Bus wiring.**

### 'OneSwitch' Dimming

OneSwitch dimming affords local control to the end-user whereby a simple, momentary, push-to-make wallswitch can be used to raise or lower the lighting level or to toggle the output ON/OFF. A short press of the switch (less than 1 second) will toggle the output status while a longer press will raise or lower the output. Each time the switch is pressed, the direction of dimming reverses. If the switch has not been pressed for 5 seconds, the direction will be up (brighter) - unless the output is already above 90% in which case the direction is down. If the switch is held continuously, and the output reaches maximum, the light output will remain at this level until the switch is released - a latching switch may be connected in parallel allowing the occupancy detection to be overridden on (Note: If the initial direction was down, when the output reaches minimum it will ramp back up automatically).

## Setting the Regulating Photocell

This product is intended for use with high frequency regulating ballasts with digital control inputs. An infrared programming tool, the HP2000, is required for programming the regulating light level set point.

Using the HP2000 Programmer, enter the Utilities menu and select 'Set Light Level'. Use the 'up' and 'down' buttons to manually adjust the light output from the luminaire(s) and when at the required level press and hold 'OK' to store. The luminaire(s) will blink to acknowledge a successful store operation.

## Commissioning

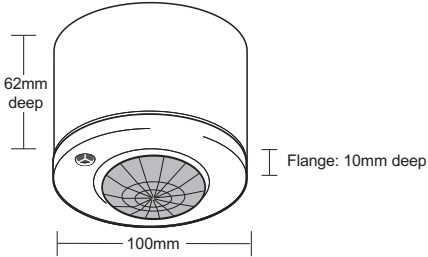
The factory default settings shown in the table below will be appropriate for most applications. However, the installer does have the facility to re-programme all parameters using the HP2000 Programmer. These parameters may be re-programmed any number of times and all settings will be retained in the event of a power loss.

Parameter	Options	Pre-Set	Notes
Power Up	On / Off	On	Sets the luminaire state at power up irrespective of occupancy. Useful in reducing start-up load following power cut. Power-up off - responds to occupancy after 30 seconds.
Response	Auto, Manual/Bus, Manual only	Auto	If set to Auto, the presence detector switches the luminaire on and off automatically. If set to Manual Only, it can only be turned on by using OneSwitch or the hand-held controller. If set to Manual/Bus, an MLS Bus turn-on command for a Zone to which the detector belongs will also bring the light on. In all modes the "When Vacant" behaviour (see below) is initiated automatically.
Off Delay	1 min - 96 hrs, 10-sec (walk-test), Disabled	20 mins	The time for which the luminaire will stay on following the last detected movement. Also 10-second setting for walk-testing.
24 Hour Cycle	On / Off	Off	Output turns off for duration of 'Off Delay' if area is unoccupied for 24 hours.
Bus Connect	Yes / No	Yes	Do/Do not Signal/Receive on MLS Bus.
1st - 4th Zone	Address 1-100; -- (no zone); Common 1-3	No Zone	Individual Zones influencing and being influenced by this detector.
Corridor 1 & 2	0-100; -- (no zone); Building	No Zone	Ranges of Zones influencing and being influenced by this detector.
Global 1 & 2 Rx	Yes / No	No	Respond to selective load shedding.
Manual Input	Shared / Local	Local	Do/Do not signal OneSwitch commands across the MLS Bus.
Start Lamps	Max / Min	Max	Sets the level at which the lamps strike when turning on.
Entry Scene	1-6	Scene 1	Sets which scene is recalled when an unoccupied area is entered.
Bright Out	Yes / No	No	If set to yes, movement fails to refresh the off delay if the ambient light level exceeds 125% of the set level and the luminaire will switch off when the off delay has elapsed. (Note: Dimming must be set to 100%)
Photocell	Reg 50%-100% / Passive / Active / Disabled	Reg 100%	Regulating - sets regulating range of the ballast in daylight conditions, i.e. at 100% the ballast can regulate over its full range, at 70% the ballast will not dim below 30% output. Passive - photocell inhibits turn-on of the controlled load if sufficient natural light is available. It will not turn off the load whilst an area is occupied. Active - The photocell turns the controlled load on and off as required as natural natural light levels fluctuate during a period of occupancy. Disabled - the photocell has no effect.
Lamp Max	10%-100%	100%	Can be set to limit the absolute maximum output of the ballast in all operating modes.
Fade to Off	Yes / No	No	When no presence is detected, and after the off delay period, the lamps can fade out instead of switching off (approx 80 seconds to fade from 100% to 0%)
When Vacant	Off / Min / Reg <25% / Scene 6	Off	Options for a vacant area after it has timed out. Luminaires can turn off, remain at minimum output, or regulate with a 25% output limit, until the next period of occupancy. If programmed to remain at minimum, to regulate below 25% or go to scene 6, there are further programmable options to switch off after 3 times the Off Delay (XTN) or when no further movement has been detected anywhere in the building (BLD).
Lower/Upper Threshold	0-254	254	Lower Threshold - Point at which photocell allows lights to switch on. Upper Threshold - Point photocell turns lights off when in Active mode.

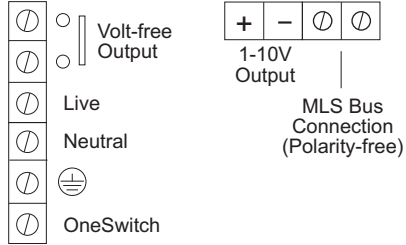
## Lens Mask

A lens mask (HBPIRLM) is available to mask end-of-aisle movement from being detected.

## Dimensions



## Electrical Connections

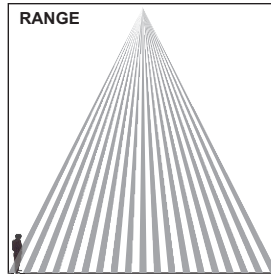


## Technical Data

MLS CABLE: 1.5mm<sup>2</sup> unscreened twisted-pair : see Application Note AN4001

MAXIMUM RECOMMENDED MOUNTING HEIGHT: 16.0m

RANGE: 360° cone-shaped detection pattern,  
diameter (at floor level) = 1 x mounting height



MINIMUM MOUNTING PITCH (SPACING): 0.5 x mounting height (regulating mode only)

OPERATING VOLTAGE: 230V 50Hz (UK & Europe)

PRODUCT RATING & RECOMMENDED CIRCUIT PROTECTION: 10 Amps

CAPACITY: 6 Amps

OUTPUT: Analogue 1-10V

PHOTOCELL: Regulating

WEIGHT: Approx 200g

COLOUR: White

MATERIAL: Flame retardant PC/ABS

IP RATING: 3X

OFF DELAY: Adjustable via Programmer - factory pre-set to 20 minutes

OPERATING TEMPERATURE: 0°C to 40°C

### Important Additional Notes

1. All terminals on this product are provided for final connections. It is not intended that the product be used as a junction box for looping cables.
2. A means for disconnection must be incorporated in the fixed wiring in accordance with the current wiring regulations.
3. Although nominally 12V, the dimming output is not SELV and therefore should be treated with the same respect as mains with regard to wiring practice. The 0V line of the dimming output is almost at Neutral potential.
4. The dimming control output should be connected only to the control input of the ballasts - never to other detectors.
5. Due to the fact that the photocell is on the ceiling looking down, it is not possible for measurements made with a lux meter on the working plane to remain constant when daylight illuminates the ceiling and the working plane to a differing extent. Therefore, products of this type should be regarded as capable of maintaining an APPROXIMATE light level only.

## Ex-Or

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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.



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