ii) Switching Photocell Only (Passive Photocell = YES)

Use Passive mode in applications where light level regulation is not required (e.g. when controlling non-dimmable ballasts), but it is desirable to hold off the controlled lighting when natural light is sufficient. The parameter Set-Point Low on the HP2000 menu is designed to programme the MLS2500D's passive photocell set point, which determines whether the lights will be allowed to turn on as an unoccupied area is entered. The threshold is programmed as a number between 1 (darkest) and 1023 (brightest). This number is not scaled to correlate with 'lux' measurements made using a light meter, but nevertheless is a true representation of the light level perceived by the MLS2500D.

In order to assist with selection of the appropriate Set-Point Low setting, the light level currently perceived by the detector (in terms of a number between 1 and 1023) can be viewed on the HP2000 screen briefly following a download operation. The number represents the light level immediately before the download took place. *Tip: Turn the lights off first (using user-remote found in utilities) if you want to measure the perceived light level with no contribution from the controlled lighting.*

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. Although nominally 12V, the dimming output is not ELV and therefore should be treated with the same respect as mains with regard to wiring practice.

3. 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.

4. Please note that, although configurable as a regulating photocell, [closed-loop dimming according to daylight], due to the probable corner-of-room location where there will be excessive influence by daylight reflected from the walls, this product is not intended to achieve precise light level regulation measured on the working plane.

5. This equipment switches lights no more frequently than would a responsible human occupant. However, manufacturers of some 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.

Technical Data

MLS CABLE: 1.5mm sq unscreened twisted-pair (applicable when detector used as part of a full MLS Digital Managed Lighting System); see Application Note AN4001.
OPERATING VOLTAGE: 230V ~ 50Hz (UK & Europe).
SWITCH CAPACITY: 10 Amps max any lighting load except incandescent lamps: 1500W max (at 230V~).
MAX RECOMMENDED MOUNTING HEIGHT: 3.5m.
RANGE: Adjustable up to 20m.
OFF DELAY: 10 seconds to 96 hours.
WEIGHT: 160g.
COLOUR: White.
MATERIAL: Flame retardant PC/ABS.
IP RATING: 43 when ceiling mounted, 4X when wall mounted.

Contact Ex-Or Technical Helpline on 01942 719229 for guidance on installation and commissioning.

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.
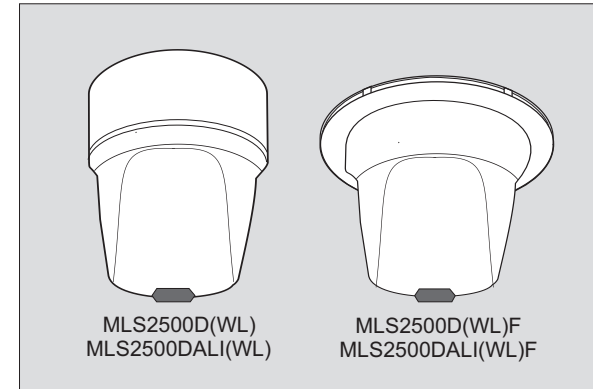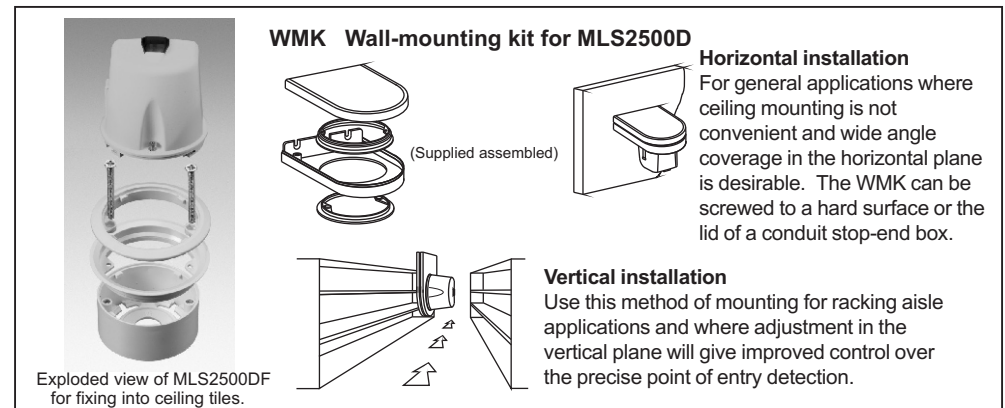
CE

W4364A

Ex-Or
Making light work

MLS2500D / MLS2500DF
MLS2500DWL* / MLS2500DWLF*
MLS2500DALI / ML2500DALIF
MLS2500DALIWL* / MLS2500DALIWLF*
Digital Mid Range LightSpot

*with Wireless OneSwitch facility

MLS2500D(WL)
MLS2500DALI(WL)

MLS2500D(WL)F
MLS2500DALI(WL)F

Installation and Commissioning Instructions

Note: HP2000 required for commissioning

Exploded view of MLS2500DF for fixing into ceiling tiles.

WMK   Wall-mounting kit for MLS2500D

(Supplied assembled)

Horizontal installation
For general applications where ceiling mounting is not convenient and wide angle coverage in the horizontal plane is desirable. The WMK can be screwed to a hard surface or the lid of a conduit stop-end box.

Vertical installation
Use this method of mounting for racking aisle applications and where adjustment in the vertical plane will give improved control over the precise point of entry detection.

Digital Mid Range LightSpot

Fixing   Only suitably qualified personnel should install this equipment.

1. The Digital Mid Range LightSpot is an extremely sensitive movement detector; it is essential therefore that it be installed on a rigid surface that will not itself be subject to any movement or vibration.

2. Before isolating the circuits to be switched, check that all lighting is fully operational and that there is no moving equipment or machinery within the monitored area which may cause nuisance switching.

3. Position the detector where it has a good forward "view" of the area to be controlled. Ideal mounting location is normally in a corner by the entrance or at one end of a corridor at a height of 2.5 to 4m. Do not mount within 25cm of a fluorescent fitting.

   Please note that this product 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.

   Also, microwave presence detection is not completely attenuated by materials such as plasterboard, wood and glass, so the possibility of unwanted presence detection through office partitions should be considered when determining detector positioning and sensitivity settings within the intended application.

4a. **MLS2500D - Surface version**

   Separate the detector from its back-box by loosening the locking screw so that approximately 3mm of thread is visible and then twisting the detector off the back-box. Note the arrow symbol moulded into the bottom of the back-box. The fixing holes allow for mounting on a BESA box or direct to a rigid surface. Secure the back-box firmly to a rigid surface so that the arrow points into the controlled area.

4b. **MLS2500DF - Semi-flush version**

   Use a hole saw to drill a 76mm hole into the ceiling tile. The flush ring is designed to clamp the tile between its two halves. Loosen the locking screw so that approximately 3mm of thread is visible and remove the bottom half of the flush ring. With the detector in the ceiling, pointing towards the area to be controlled, fit the bottom half of the flush ring to the assembly. Depending on the thickness of the ceiling tile, screws longer than those supplied may be required to hold the two halves of the flush ring together.
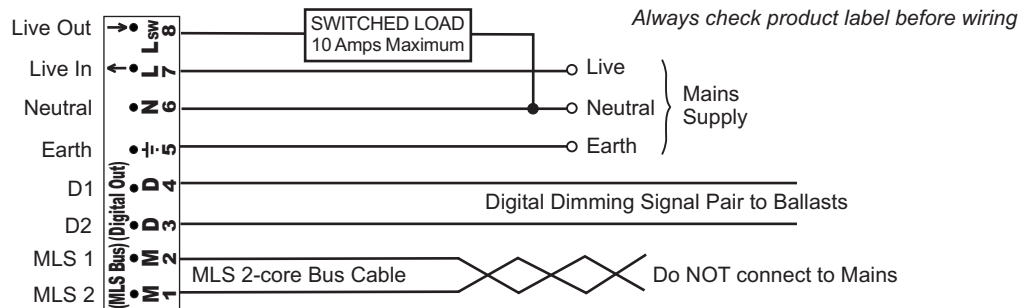
It is recommended that Mid Range detectors be ceiling mounted. Where this is not possible, the wall-mounting kit (WMK - see cover page) must be used.

Electrical Connections

Digital Mid Range LightSpot should be connected in accordance with the diagram below

Digital Mid Range LightSpot is designed to control up to 25 DSI or DALI ballasts, a switched load of up to 10 Amps or a combination of the two. When controlling DSI or DALI ballasts the ballast types must not be mixed. The DSI or DALI input terminals on the ballasts should be connected in parallel with each other and to the Polarity-Free Digital Output terminals of the MLS2500D. Each DSI or DALI luminaire is controlled completely by its digital input and therefore would normally have a permanent power supply. Turning the power off to some lights within a control circuit will not affect the operation of those lights that remain powered and under the control of the MLS2500D.

When switching via the relay output, multiple MLS2500Ds' relay outputs may be connected in parallel provided the controlled load does not exceed 10 Amps. If digital ballasts are also being controlled, the digital outputs from different detectors must never be connected one to another, even if they are of the same type.

Always check product label before wiring

Live Out → L_SW 8
Live In ← L 7 — SWITCHED LOAD 10 Amps Maximum — Live
Neutral ● N 6 — Neutral } Mains Supply
Earth ● ⏚ 5 — Earth
D1 ● D 4 — Digital Dimming Signal Pair to Ballasts
D2 ● D 3 —
MLS 1 ● M 2 — MLS 2-core Bus Cable — Do NOT connect to Mains
MLS 2 ● M 1 —
(MLS Bus) (Digital Out)

Note: A means of disconnection must be incorporated into the fixed wiring in accordance with the current wiring regulations.

Commissioning

The units are supplied with the factory default settings, shown below, which render commissioning, apart from zoning, unnecessary in many applications. To allocate to zone(s), effected via the MLS Bus signals, and make use of the programmable settings, an infrared commissioning tool is required (the HP2000). A ten-second time delay is selectable to aid commissioning.

Sensitivity to Movement

While the factory settings will be correct for many applications, the sensitivity can be adjusted if required.

ON Sensitivity (ON Range): This sets the detector's range when the lights are ON. Choose setting from 1-100 where 1 is lowest and 100 is maximum. (Note: Choose the lowest level possible to give adequate detection.)

OFF Sensitivity (OFF Range): This sets the detector's range when the lights are OFF. Choose % setting from 10% to 100% where 10% = 10% of ON Sensitivity and 100% = same as ON Sensitivity. This is an approximation and should be tested on site during commissioning.

Like all programmable parameters, the sensitivity settings will be retained in the event of a power failure and can be re-programmed any number of times.

Factory Default Settings

Parameter	Options	Default Setting	Options
Power up	ON/OFF	ON	
Response	Auto/Semi-auto	AUTO	Each of these settings
Off Delay	1min-96hrs or Disabled	20 min	can be re-programmed,
On Range	1-100	20	if desired, by use of the
Off Range	10-100% in 10% increments	100%	infrared programming
1st Zone	Address 1-100	-	tool HP2000.
2nd Zone	Address 1-100	-	
3rd Zone	Address 1-100	-	
4th Zone	Address 1-100	-	
Corridor 1	1-100 Building Address Span	-	
Corridor 2	1-100 Building Address Span	-	
Global 1 Rx	YES/NO	NO	
Global 2 Rx	YES/NO	NO	
Passive Photocell	YES/NO	YES	
Manual Input	LOCAL/SHARE	LOCAL	- Manual Input is only
Start Lamps	MAX/MIN	MAX	available via the
Entry Scene	1-6	1	Wireless OneSwitch
Bright-Out	YES/NO	NO	facility of the
Fade to Of*	YES/NO	NO	MLS2500DWL(F) and
Vacant	10 Exit Scenes	OFF	MLS2500DALIWL(F).
Dimming	Regulate 50-100%	100%	See Application Note
Set-Point Low	0-1023	766	AN4021 for further
Set-Point High	0-1023	1022	information

Setting the Photocell

The regulating light level is set using either a hand-held controller (HC5) or via the infrared programmer HP2000.

i) Regulating Only

Using a light meter, set the required light level and choose Set Light Level in the USER REMOTE menu on the HP2000. A snapshot of the current conditions is taken by the detector and stored as the regulating set point - Set-Point Low in the table above. When used with regulating ballasts, the photocell may hold lights off upon entry should sufficient natural light be available. It will only turn lights off in an occupied area if Bright-Out is set to YES and the light level exceeds the Set-Point High setting for a period.

Please note that, although configurable as a regulating photocell, providing closed-loop dimming according to daylight levels, it is probable that the typical corner-of-room location dictated by the needs of the presence detection function will compromise the detector's ability to achieve precise light levels on the working plane, due to the effects of strong reflections of light of all origins from the walls and/or of direct daylight from any windows in its field of view.