

# MLS **REMOTE DETECTORS** for **DIMMABLE ELECTRONIC BALLASTS** **MLS2000DF/DALIF & MLS2001DF/DALIF/AF/DSM/DALISM/ASM**

The Ex-Or MLS Managed Lighting System set the standard for communicating lighting management systems when it was introduced in 1994. With continuous development it has evolved as Europe's premier lighting management system utilising the latest digital control. MLS Digital expands the original system to include capabilities never before available in a lighting management system of this kind. These include:

### Scene-setting

Users can set up six lighting scenes by infrared remote control and recall them with a single press of a button.

### Entry and Exit Scenes

The Entry Scene is automatically selected when the area becomes occupied. Similarly, there is an option to select an Exit Scene for when an area is vacated.

### Group Dimming

Groups of luminaires may be brightened, dimmed and switched on/off by remote control.

### Ballast Compatibility

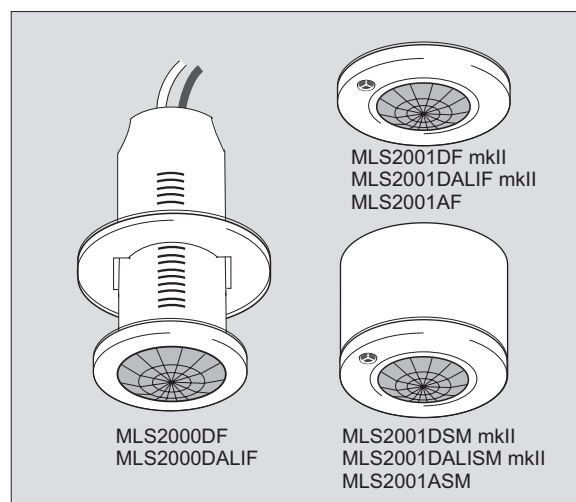
MLS Digital is available for DSI, DALI and 1-10V Analogue ballasts.

### OneSwitch™ Dimming

A simple, momentary, push-to-make wallswitch can be used to raise or lower the lighting level or to toggle the output ON/OFF.

### Commissioning the Programmable Parameters

The operation of MLS Digital is determined by the way the system is commissioned. Commissioning and re-commissioning is carried out using a menu-driven infrared remote programmer (HP2000) with virtually no disturbance to the building's occupants. The programmable parameters are shown overleaf in the order they are presented on the programmer. Options are selected from a choice of two or from a list.



Ref: D4029F

### Commissioning of Lighting Scenes

Lighting scenes are set up using the infrared HC5 Hand-held Controller. The scene is set up manually then stored by a long press on the selected scene button. New scenes can be set up in this way without the need for separate programming devices.

This data sheet covers the range of MLS Digital Detectors for ceiling-mounting. These remote detectors are used to provide groups of luminaires with presence detection, daylight regulation/photocell control and full communication functions.

### Accessories

#### HP2000 MLS Digital Programmer

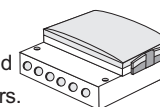
Menu-driven LCD Programmer with automatic equipment recognition and parameter download facilities.



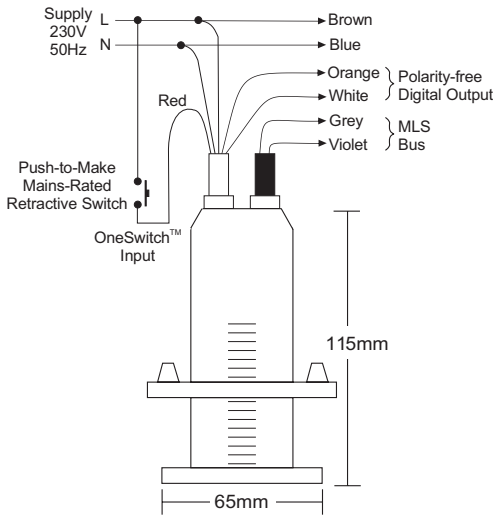
#### HC5 Universal Hand-held Controller

#### RB2000 Bus Power Supply

A single Bus Power Supply synchronises and powers the bus for up to 200 MLS Controllers. It also provides a test facility. Units may be linked for larger installations and to provide a building-wide common zone. (RB2000LT Bus Power Supply Lite may also be used.)



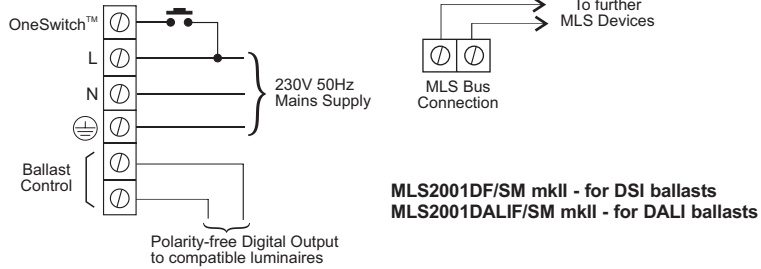
# Electrical Connections and Installation Notes



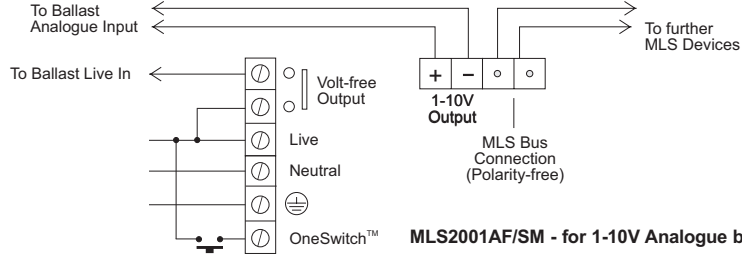
**MLS2000DF - for DSI ballasts**  
**MLS2000DALIF - for DALI ballasts**

### Installation

**Slimline flush versions:** Cut a 50mm diameter (64mm if using an FR64 flush ring or PB64 plasterboard fixing kit) circular hole in the ceiling tile, feed the flying lead and detector through and secure into position with the locking ring. Do not mount within 25cm of a luminaire.



**MLS2001DF/SM mkII - for DSI ballasts**  
**MLS2001DALIF/SM mkII - for DALI ballasts**



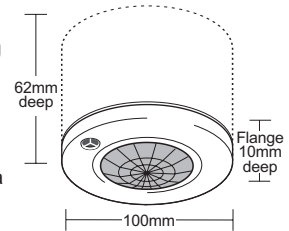
**MLS2001AF/SM - for 1-10V Analogue ballasts**

### Installation

**Flush versions:** Depth required behind ceiling: 62mm from front flange. Sinking box fits into 89mm diameter hole in ceiling tile or plasterboard ceiling. No access above the ceiling is necessary. The detector fits into the sinking box with a simple bayonet action thus concealing the fixing screws.

**Surface versions:** The housing may be secured to a hard surface or a BESA box. The detector fits into the housing with a simple bayonet action thus concealing the fixing screws.

Note: Do not mount within 25cm of a luminaire.



Programmable Parameters	Selectable Options (Factory pre-set shown in bold)	Technical Data
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<b>Power up</b>	On / Off	<p><b>All types:</b>                      MAX RECOMMENDED MOUNTING HEIGHT: 3.0m                      RANGE: Cone-shaped detection pattern, diameter (at floor level) = 2.4 x mounting height                      OPERATING VOLTAGE: 230V 50Hz (UK &amp; Europe)                      PRODUCT RATING &amp; RECOMMENDED CIRCUIT PROTECTION: 10 Amps                      COLOUR: White                      MATERIAL: Flame retardant PC/ABS                      IP RATING: 4X                      PHOTOCELL: Regulating (operational in Scene 1 only)</p> <p><b>MLS2000DF / MLS2000DALIF:</b>                      WEIGHT: 70g excluding cable                      OUTPUT: Digital DSI/DALI                      CAPACITY: 9 ballasts</p> <p><b>MLS2001D* / MLS2001DALI* / MLS2001A*:</b>                      WEIGHT: Approx 200g                      OUTPUT: Digital DSI (MLS2001D*)                      DALI (MLS2001DALI*)                      1-10V Analogue (MLS2001A*)                      CAPACITY: 25 ballasts</p> <p>* Denotes suffix F or SM</p> <p>Ex-Or operates a genuine policy of continuous improvement. You may expect the specification to be regularly enhanced. For latest technical information, please visit <a href="http://www.ex-or.com">www.ex-or.com</a></p>
<b>Response</b>	Auto / Manual/Bus / Manual Only	
<b>Off Delay</b>	5-60 mins in 5 min steps/up to 96 hrs/10 secs for walk test. <b>20 mins</b>	
<b>24 Hour Cycle †</b>	On / Off Output turns off for duration of Off Delay if area is unoccupied for 24 hrs. Useful for hygiene flush when controlling water.	
<b>Bus Connect</b>	Yes / No	
<b>Zone 1, 2, 3 &amp; 4</b>	1-100 addresses. <b>None</b>	
<b>Corridor 1 &amp; 2</b>	Set addresses to begin and end contiguous group of zones. <b>None</b>	
<b>Global 1 &amp; 2 Rx</b>	Yes / No	
<b>Manual I/P</b>	<b>Local</b> / Share This determines whether OneSwitch™ operates locally (just one detector) or on all devices on the same zones.	
<b>Start Lamps</b>	<b>Max</b> / Min	
<b>Entry Scene</b>	Select Scenes 1 - 6. <b>Scene 1</b>	
<b>Bright-out</b>	Yes/ <b>No</b>	
<b>Dimming</b>	Reg 100-50% <b>Reg 100%</b> Sets the 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. Manual override is not affected.	
<b>Fade to Off</b>	Yes/ <b>No</b>	
<b>When Vacant</b>	<b>Switch Off after Off Delay</b> Go to Minimum } and do not switch off Regulate up to 25% } for 3 x Off Delay (XTN) then switch off Go to Scene 6 } until building is vacated then switch off	
<b>Photocell †</b>	Reg 100 - 50% / Passive / Active / Disabled <b>Reg 100%</b> See 'Dimming' above for details of regulating range. Active Holds/switches lights off in bright ambient conditions Passive Holds lights off in bright ambient conditions Disabled No photocell action If either of these options is chosen, the Bright-out and ambient light dimming functions are de-activated. The photocell will not dim the luminaire.	
<b>Lamp Max</b>	10-100% (10- 50% in 5% increments; 50%+ in 10% increments) <b>100%</b> Limits the maximum output of the ballast in all operating modes.	
<b>Lower Threshold †</b>	0-254 Point at which photocell allows lights to switch on.	
<b>Upper Threshold †</b>	0-254 Point where photocell turns lights off if Photocell Mode = Active	

† Analogue versions only

### Part Numbers

<p><b>MLS2000DF</b>  <b>MLS2001DF mkII</b>  <b>MLS2001DSM mkII</b>  <b>MLS2000DALIF</b>  <b>MLS2001DALIF mkII</b>  <b>MLS2001DALISM mkII</b>  <b>MLS2001AF</b>  <b>MLS2001ASM</b></p>	<p><b>MLS Digital Detectors:</b>                      for DSI ballasts - slimline flush                      for DSI ballasts - flush                      for DSI ballasts - surface                      for DALI ballasts - slimline flush                      for DALI ballasts - flush                      for DALI ballasts - surface                      for Analogue 1-10V ballasts - flush                      for Analogue 1-10V ballasts - surface</p> <p><b>Accessories:</b>                      MLS Digital Bus Power Supply                      MLS Digital Bus Power Supply 'Lite'                      MLS Digital Programmer                      Universal Hand-held Controller</p>
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