

MLS Digital - Networked Managed Lighting System

Integral Communicating Detectors

MLS Digital offers a flexible, user-responsive, building-wide control solution via a network of communicating detectors. Constant monitoring of occupancy and ambient light levels enables the system to automatically deliver optimum lighting conditions while effecting energy and cost savings.

These MLS Luminaire Controllers may be integrated within luminaires with all makes of high-frequency regulating ballasts to provide individual luminaires with presence detection, daylight regulation/photocell control and full communication functions.

There are two types of controller: the single unit MLS2000DI/DALI and the two-part MLMS2000D/DALI/A control module with DHW/S mini detector head (only the ultra-discreet detector head is visible).



Presence detection is by passive infrared, effectively enhanced to improve sensitivity to small movements.



Regulating photocell ensures a minimum maintained light level, taking account of the contribution from adjacent luminaires and daylight



Passive photocell holds lights off in bright ambient conditions. The choice of regulating, passive or none is available via HP2000 on Analogue version.



Off delay: Period following the last observed movement after which the lights switch off.



Detection pattern and approximate range in metres at floor level for 2.5m mounting height (detection pattern is cone shaped).



Incorporates simple scene-setting - up to six scenes including entry and exit scenes can be set or recalled via user remote.



Hand Controller provides local user override.



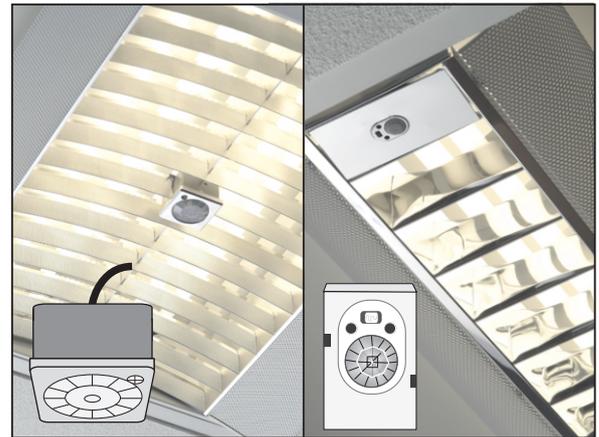
Remote programming via HP2000 ensures changes can be easily accommodated.



OneSwitch Dimming. Manual input to adjust light level or turn luminaires on or off. Available on Two-part Controllers.



100-hour Burn-in. Inhibits dimming functions to allow new lamps to burn in. Available on MLS2000DI/DALI Single-unit Controllers.



Commissioning the Programmable Parameters

Operation of the system is determined by its commissioning. This is carried out using a menu-driven infrared remote programmer (HP2000) with virtually no disturbance to the building's occupants. Settings can be changed whenever required in the same way. The programmable parameters are shown overleaf; options for each parameter are selected from alternatives.

Commissioning of Lighting Scenes

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

Ancillary Items

HP2000 MLS Digital Programmer

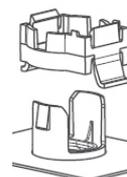
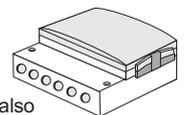
Menu-driven LCD Programmer with automatic device recognition and parameter download facilities.



HC5 Universal Hand-held Controller

RB2000 Bus Power Supply

A single Bus Power Supply synchronises and powers the bus for up to 200 MLS devices. 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 may also be used but with reduced functionality.)



DHFK Flush-mounting Kit for Mini Detector Head

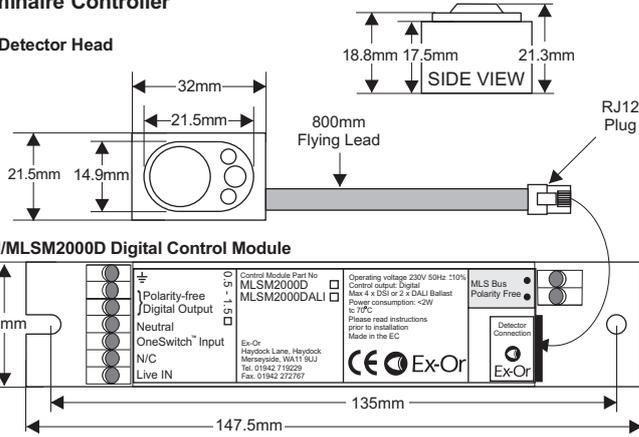
Allows for installation via a 30mm hole in the panel. Available in black, silver or white.

Please check www.ex-or.com to ensure this is the most recent issue - Ref: D4068H

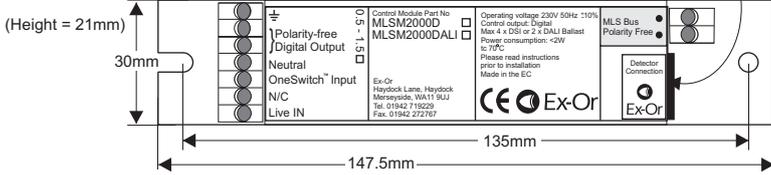
Electrical Connections

Two-part Luminaire Controller

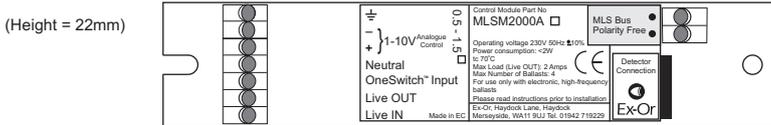
DHW/DHS Mini Detector Head



MLSM2000DALI/MLSM2000D Digital Control Module



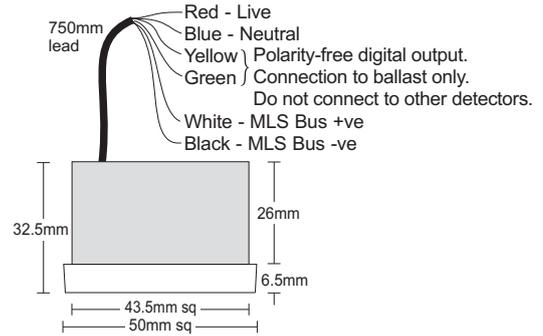
MLSM2000A Analogue 1-10V Control Module



Single-unit Luminaire Controller

For DSI ballasts: MLS2000DIS & MLS2000DIW

For DALI ballasts: MLS2000DALIS & MLS2000DALIW



Please Note: The MLS Bus is polarity-conscious unless specified otherwise on the detector/control module.

Programmable Parameters	Selectable Options (Factory pre-set shown in bold)
Power up	On / Off
Response	Auto / Semi-Auto
Off Delay	1 min to 96 hrs / 10-second Walk-test Mode / Disabled. 20 mins
Bus Connect	Yes / No
1st - 4th Zone	1-100 addresses. None
1st - 4th Zone [†]	1-50 addresses. None
Common Zone 1 - 3 [†]	On / Off
Corridor 1 & 2	Set addresses to begin and end contiguous group of zones. None
Global 1 & 2 Rx	Yes / No
Manual I/P	Local / Share - Determines whether OneSwitch operates locally (just one detector) or on all devices belonging to the same zone.
Start lamps	Max / Min
Entry Scene	Select Scenes 1 - 6. Scene 1
Bright-out	Yes / No
Dimming	Reg 100-50% Reg 100% 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.
Lamp Max*	10 - 100% (10 - 50% in 5% increments; 50%+ in 10% increments) 100% Manual override is not affected.
Fade to Off	Yes / No
When Vacant	Switch Off after Off Delay Go to Minimum } and do not switch off Regulate up to 25% } for 3 hours then switch off Go to Scene 6 } until building is vacated then switch off
Photocell [†]	Regulating / Passive / None See 'Dimming' above for details of regulating range.
Threshold [†]	0-254 In Passive photocell mode, this number represents the light level below which lights will be triggered when occupancy is detected
Additional feature available under Utilities on HP2000:	
100-hr Burn-in**	Inhibits dimming functions during burning-in of new lamps. 0hr

NOTE: The parameters differ slightly between products.
[†] Denotes parameters for Analogue version only.
 * This feature is available on MLSM2000D/DALI only.
 ** Available on MLS2000DI/DALI only.

Technical Data
All types: MLS CABLE: 1.5mm ² unscreened twisted-pair: see Applic Note AN4001 MAXIMUM RECOMMENDED MOUNTING HEIGHT: 3.0m RANGE: Cone-shaped detection pattern, diameter (at floor level) = 2.4 x mounting height OPERATING VOLTAGE: 230V 50Hz (UK & Europe) COLOUR: White or silver bezel ta = 0 - 50°C
Single-unit Controller MLS2000DI/DALI: CAPACITY: DSI Digital - 4 ballasts max DALI - 1 ballast max MATERIAL: Flame retardant PC/ABS IP RATING: 4X WEIGHT: 50g
Two-part Controller MLSM2000D/DALI/A: CAPACITY: DSI Digital - 4 ballasts max DALI - 2 ballasts max Analogue 1-10V & Fixed-output - Total load must not exceed 2 Amps, up to 4 ballasts max - electronic, high-frequency ballasts ONLY INTERCONNECT CABLE TEMPERATURE RATING: 60°C MATERIAL: Detector Head - UV stabilised polycarbonate Control Module - Flame retardant PC/ABS IP RATING: 20 WEIGHT: Detector Head - 32g Control Module - 48g

Ex-Or operates a genuine policy of continuous improvement. You may expect the specification to be regularly enhanced. For latest technical information, please visit www.ex-or.com.

Part Numbers

MLSM2000D	MLS Digital Control Module for DSI ballasts
MLSM2000DALI	MLS Digital Control Module for DALI ballasts
MLSM2000A	MLS Digital Control Module for Analogue 1-10V and Fixed-output ballasts
DHW	MLS Digital Mini Head - white bezel
DHS	MLS Digital Mini Head - silver bezel
DHFK-W	Flush-mounting Kit for Mini Detector Head - white
DHFK-S	Flush-mounting Kit for Mini Detector Head - silver
DHFK-B	Flush-mounting Kit for Mini Detector Head - black
MLS2000DIS	MLS Digital Luminaire Controller for DSI ballasts - silver bezel
MLS2000DIW	MLS Digital Luminaire Controller for DSI ballasts - white bezel
MLS2000DALIS	MLS Digital Luminaire Controller for DALI ballasts - silver bezel
MLS2000DALIW	MLS Digital Luminaire Controller for DALI ballasts - white bezel

RB2000	MLS Digital Bus Power Supply
RB2000LT	MLS Digital Bus Power Supply 'Lite'
HP2000	MLS Digital Programmer
HC5	Universal Hand-held Controller c/w wall bracket