



μDim Microwave Sensors User Manual

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µDim Microwave Sensors

The µDim series of miniature microwave presence detectors provide automatic control of lighting loads with optional manual control. The unit comes complete with a selection of fixing clips, allowing unobtrusive flush mounting of the sensor head into ceiling tiles or on to solid surfaces. It has been designed so that it can be used for ceiling mounted or wall mounted applications. As microwave radiation penetrates plastic and glass, this unit has been specifically designed to be mounted inside a luminaire.

Three versions are available: switched, 1-10V analogue, and DALI. All of which will switch incandescent, fluorescent and compact fluorescent lighting.

The unit detects movement using a microwave sensor and turns the load on. When an area is no longer occupied the load will switch off after an adjustable time out period has elapsed.

Feature	SL-MW-SW	SL-MW-AN	SL-MW-DA
Up to 8m microwave sensing	●	●	●
Lux sensor	●	●	●
Presence detection	●	●	●
Infrared remote setting	●	●	●
Relay output	●	●	●
1-10 V Dimming output	-	●	-
DALI Dimming output	-	-	●

SL-MW-SW µDim Microwave Switching Sensor



The SL-MW-SW miniature microwave presence detector provides automatic control of lighting loads. The unit comes complete with a flush-mount bracket, allowing unobtrusive mounting of the sensor head into ceiling tiles or onto solid surfaces. It has been designed so that it can be used for luminaire mounted or ceiling mounted applications. As microwave radiation penetrates plastic and glass, this unit has been specifically designed to be mounted inside a luminaire.

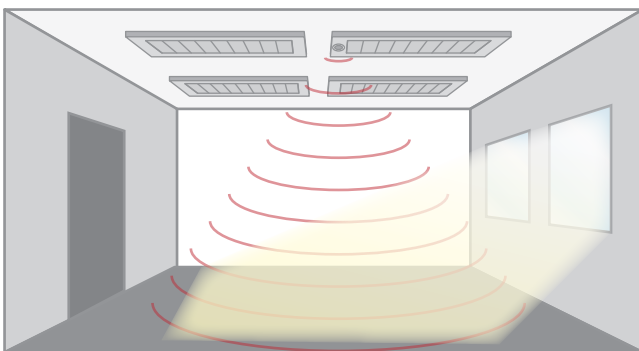
The product consists of the following :

- Sensor head with integral RJ11 sensor lead
- Power supply unit
- Flush mount bracket

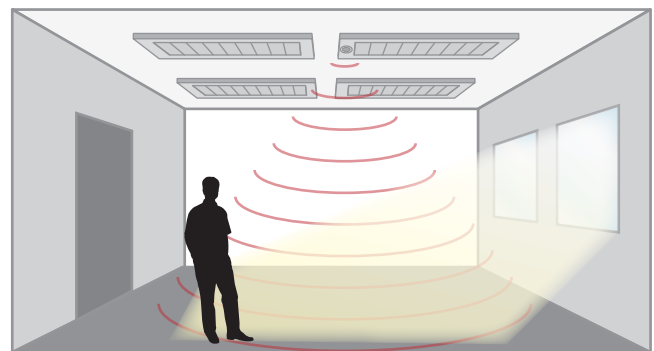
Presence detection: when movement is detected the load will automatically turn on; when the area is no longer occupied the load will automatically switch off after an adjustable time period.



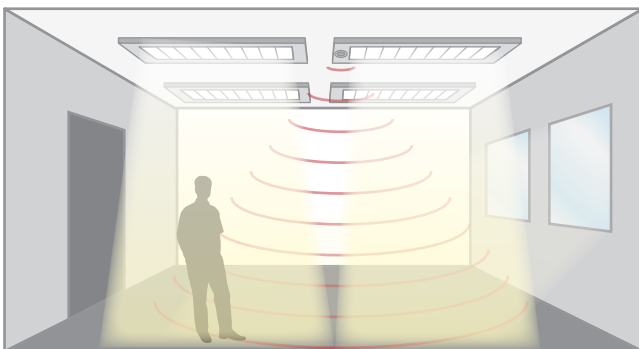
2. Technical Data



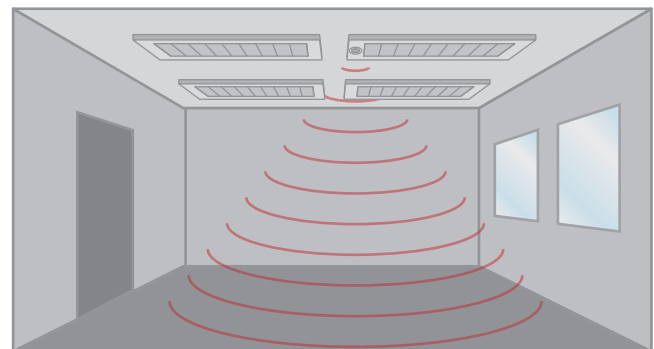
1) No presence detected, daylight, lights OFF



2) Presence detected, sufficient daylight, lights OFF



3) Presence detected, insufficient daylight, lights ON



4) No presence detected, night time, lights OFF

SL-MW-SW µDim Microwave Switching Sensor

2. Technical Data

Technical specifications

- Supply voltage 220 - 240 V AC, 50 Hz
- Max load capacity 2 A
- Light level Light to dark
- Connections Integral RJ11 cable between supply unit and sensor head
- Terminals (supply unit) 1.5mm² (solid core cable only)

Material

- Sensor head, surface mount baseplate , flush bracket — Flame retardant ABS
- Flange mount bracket & Lens—PMMA (Clear acrylic)
- Power supply unit housing — Flame retardant polycarbonate

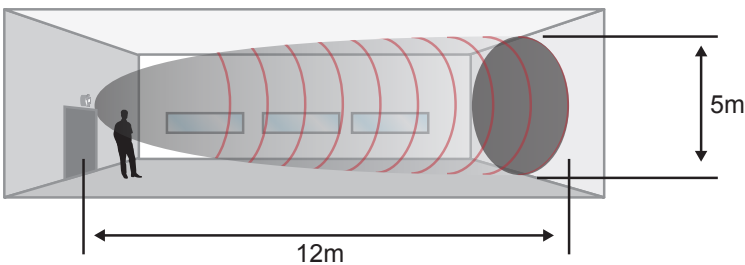
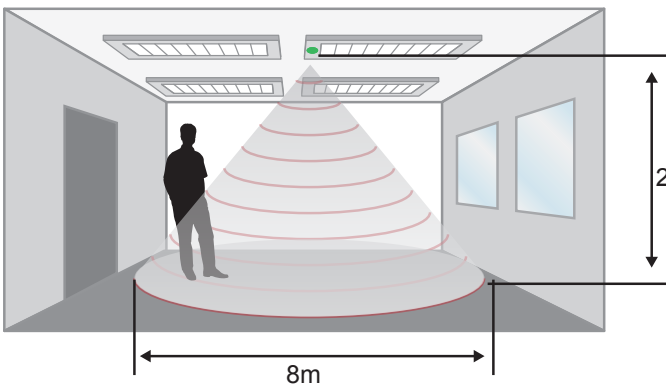
- Type Class 2
- Operating Temperature -10°C to 50°C

SAFETY

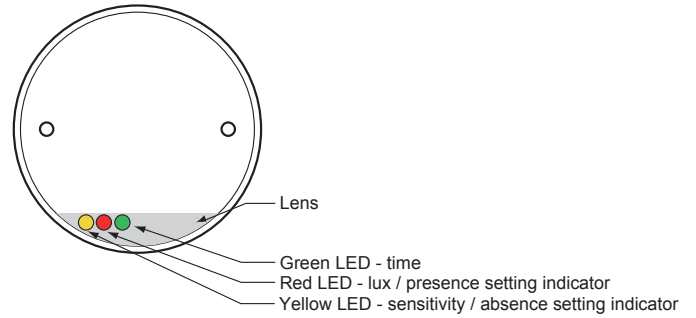
The microwave radiation emitted by these units is extremely low power. At a distance of > 50mm the power density is <6% of the ANSI IEEE C95.1 –1991 recommended microwave power density. At a distance of 5mm from the unit it is <84% of recommended power density.

- Conformity** EMC-89/336/EEC
LVD-73/23/EEC

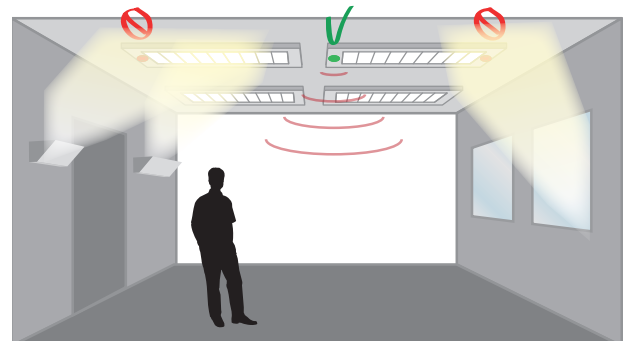
Detection area



Sensor head



Recommended mounting location



- Avoid direct sunlight entering the sensor
- Do not site within 1m of forced air heating or ventilation.
- Do not fix to a vibrating surface.
- Avoid metallic objects directly in front of the sensor head.
- Do not fit to a suspended luminaire
- When installing the sensor head behind a glass / polycarbonate diffuser will reduce the detection range by approximately 20%.

Note: On maximum sensitivity, the detector unit is extremely sensitive to movement and may detect through glass, thin walls or partitions. If this causes a problem, reduce its sensitivity using the SA-IR-PROG Programmer.

SL-MW-AN µDim Microwave 1-10V Sensor

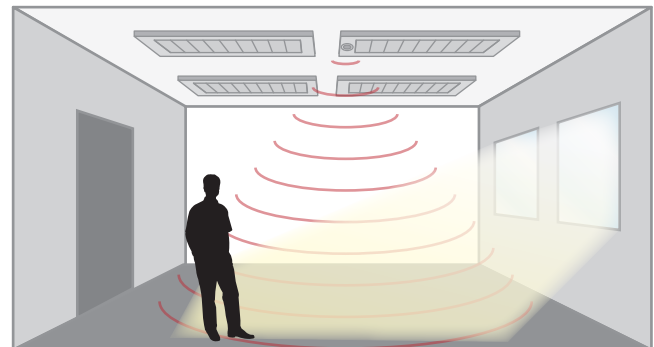


The SL-MW-AN miniature microwave presence detector provides automatic control of lighting loads. The unit comes complete with a flush-mount bracket, allowing unobtrusive mounting of the sensor head into ceiling tiles or onto solid surfaces. It has been designed so that it can be used for luminaire mounted or ceiling mounted applications. As microwave radiation penetrates plastic and glass, this unit has been specifically designed to be mounted inside a luminaire.

The product consists of the following :

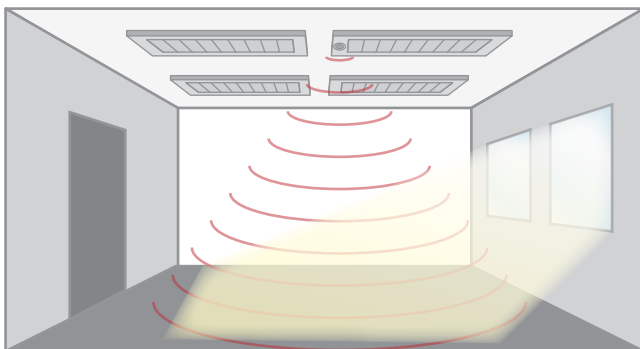
- Sensor head with integral RJ11 sensor lead
- Power supply unit
- Flush mount bracket

Presence detection: when movement is detected the load will automatically turn on; when the area is no longer occupied the load will automatically switch off after an adjustable time period.

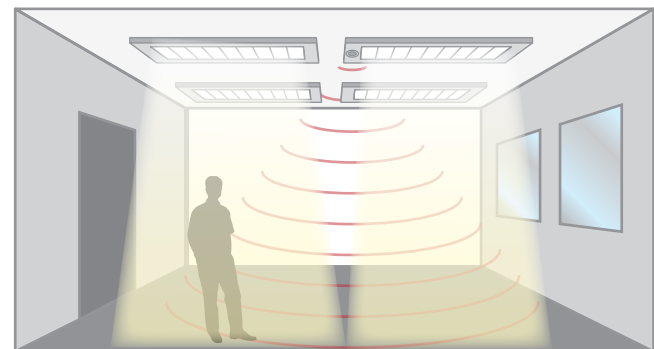


3) Presence detected some daylight.

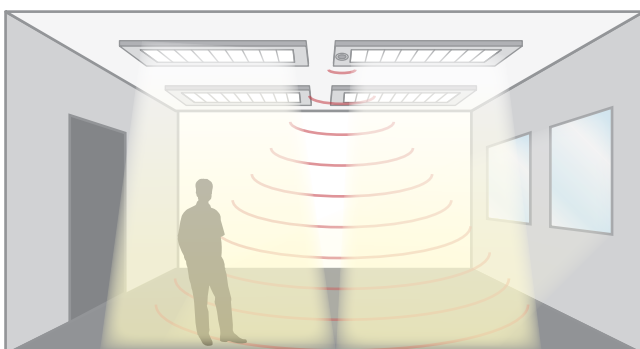
Lights on and dimmed to maintain lux level



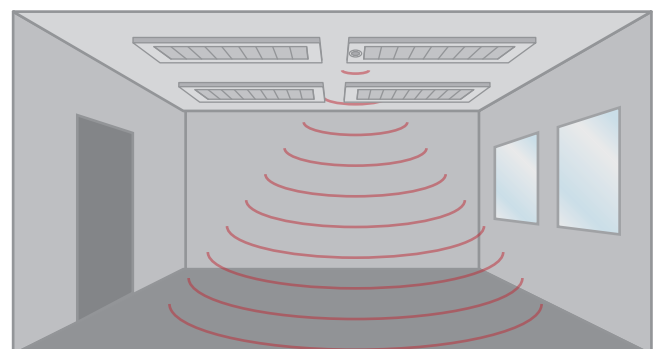
1) No presence detected, daylight, lights OFF



4) Presence detected, insufficient daylight. Detector measures and implements maintained illuminance



2) Presence detected, sufficient daylight, lights OFF



5) No presence detected, night time, lights OFF

SL-MW-AN µDim Microwave 1-10V Sensor

Technical specifications

- Supply voltage 220 - 240 V AC, 50 Hz
- Max load capacity Relay Output - 2 A
Dimmed Output - 4 x 1-10V ballasts
- Light level Light to dark
- Connections Integral RJ11 cable between supply unit and sensor head
- Terminals (supply unit) 1.5mm² (solid core cable only)

Material

- Sensor head, surface mount baseplate , flush bracket — Flame retardant ABS
- Flange mount bracket & Lens—PMMA (Clear acrylic)
- Power supply unit housing — Flame retardant polycarbonate

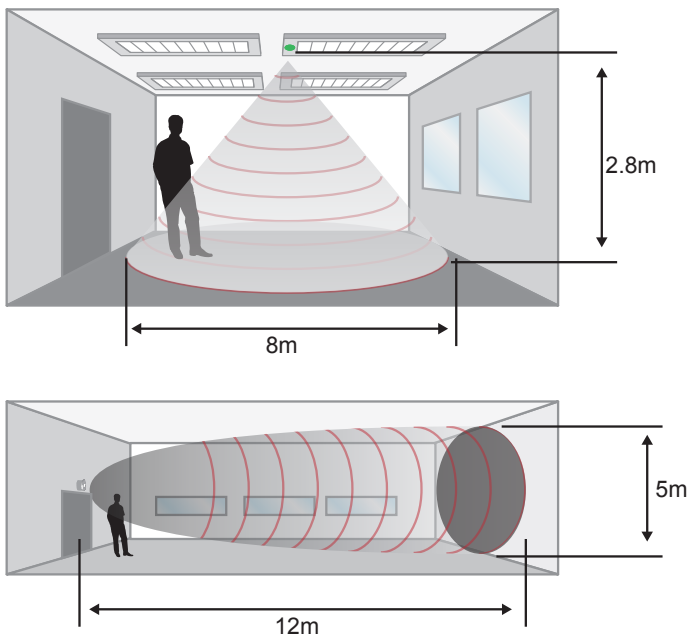
- Type Class 2
- Operating Temperature -10°C to 50°C

SAFETY

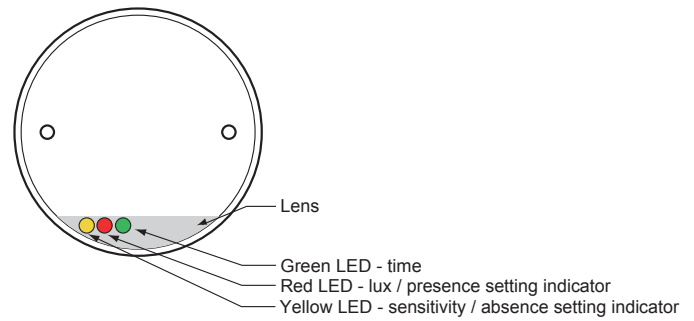
The microwave radiation emitted by these units is extremely low power. At a distance of > 50mm the power density is <6% of the ANSI IEEE C95.1 -1991 recommended microwave power density. At a distance of 5mm from the unit it is <84% of recommended power density.

- Conformity EMC-89/336/EEC
LVD-73/23/EEC

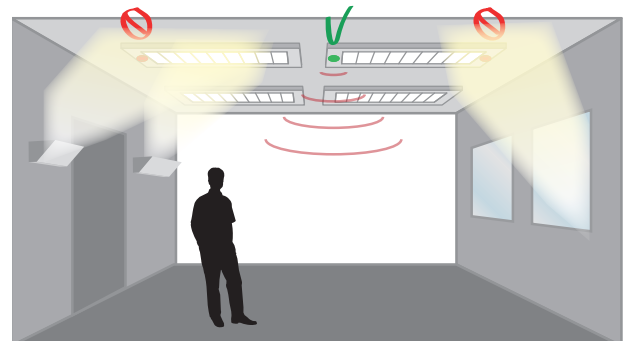
Detection area



Sensor head



Recommended mounting location



- Avoid direct sunlight entering the sensor
- Do not site within 1m of forced air heating or ventilation.
- Do not fix to a vibrating surface.
- Avoid metallic objects directly in front of the sensor head.
- Do not fit to a suspended luminaire
- When installing the sensor head behind a glass / polycarbonate diffuser will reduce the detection range by approximately 20%.

Note: On maximum sensitivity, the detector unit is extremely sensitive to movement and may detect through glass, thin walls or partitions. If this causes a problem, reduce its sensitivity using the SA-IR-PROG Programmer.

-

SL-MW-DA µDim Microwave DALI Sensor



The SL-MW-DA miniature microwave presence detector provides automatic control of lighting loads. The unit comes complete with a flush-mount bracket, allowing unobtrusive mounting of the sensor head into ceiling tiles or onto solid surfaces. It has been designed so that it can be used for luminaire mounted or ceiling mounted applications. As microwave radiation penetrates plastic and glass, this unit has been specifically designed to be mounted inside a luminaire.

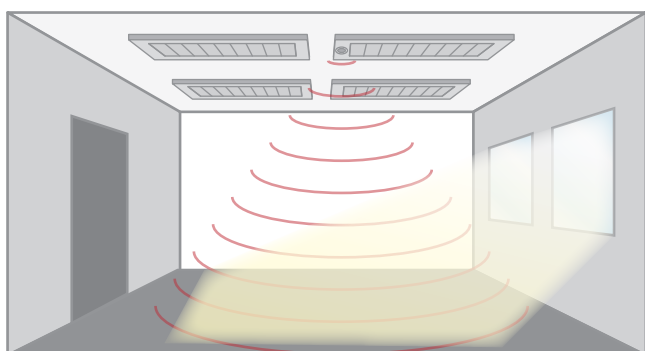
The product consists of the following :

- Sensor head with integral RJ11 sensor lead
- Power supply unit
- Flush mount bracket

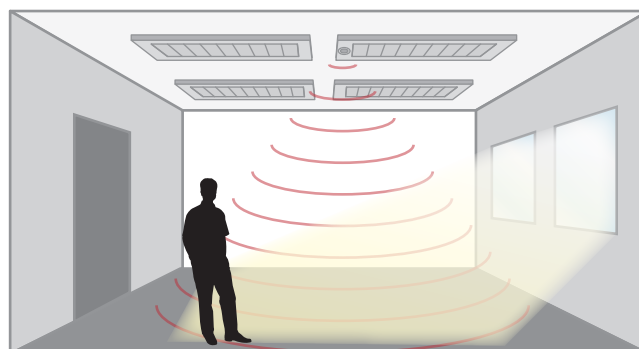
Presence detection: when movement is detected the load will automatically turn on; when the area is no longer occupied the load will automatically switch off after an adjustable time period.



2. Technical Data

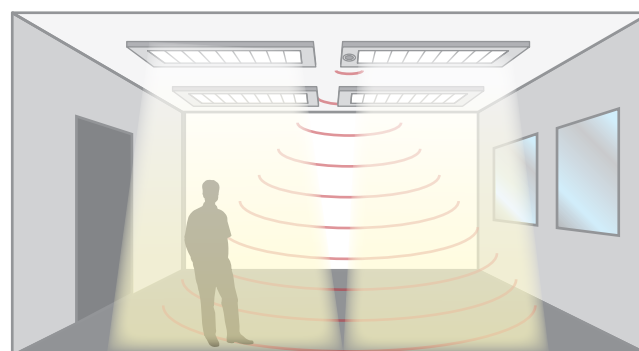


1) No presence detected, daylight, lights OFF

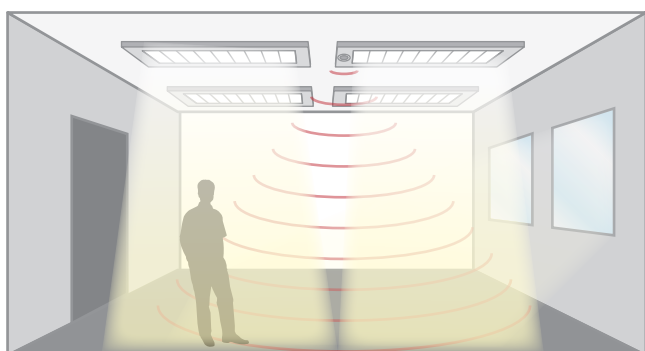


3) Presence detected some daylight.

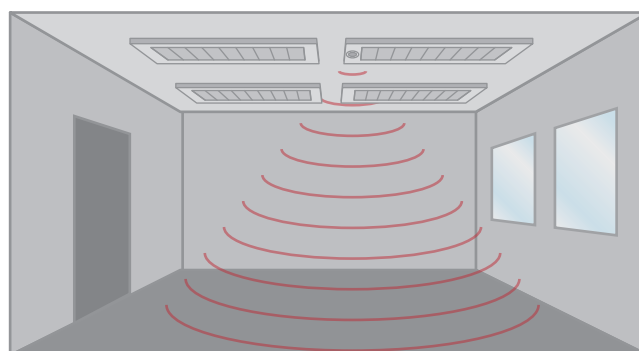
Lights on and dimmed to maintain lux level



4) Presence detected, insufficient daylight. Detector measures and implements maintained illuminance



2) Presence detected, sufficient daylight, lights OFF



5) No presence detected, night time, lights OFF

SL-MW-DA µDim Microwave DALI Sensor

2. Technical Data

Technical specifications

- Supply voltage 220 - 240 V AC, 50 Hz
- Max load capacity Relay Output - 2 A
Dimmed Output - 4 x DALI ballasts
- Light level Light to dark
- Connections Integral RJ11 cable between supply unit and sensor head
- Terminals (supply unit) 1.5mm² (solid core cable only)

Material

- Sensor head, surface mount baseplate , flush bracket — Flame retardant ABS
- Flange mount bracket & Lens—PMMA (Clear acrylic)
- Power supply unit housing — Flame retardant polycarbonate

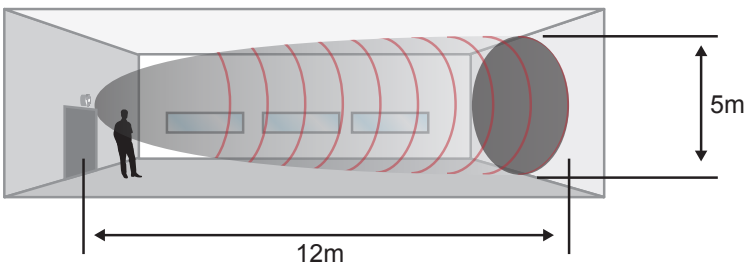
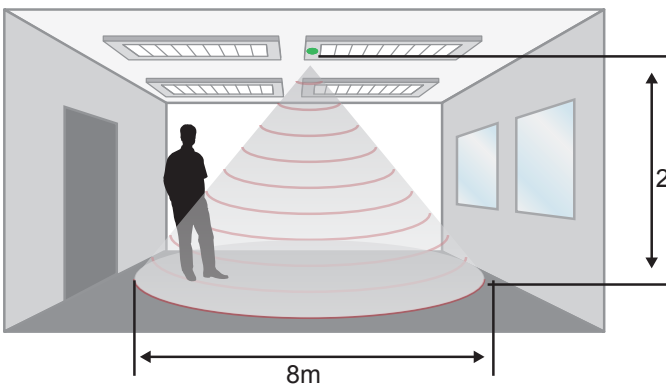
- Type Class 2
- Operating Temperature -10°C to 50°C

SAFETY

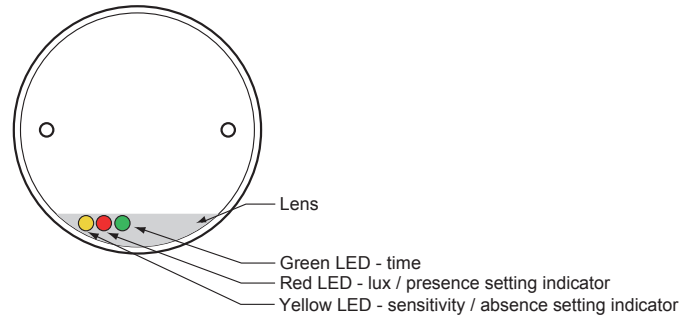
The microwave radiation emitted by these units is extremely low power. At a distance of > 50mm the power density is <6% of the ANSI IEEE C95.1 -1991 recommended microwave power density. At a distance of 5mm from the unit it is <84% of recommended power density.

- Conformity** EMC-89/336/EEC
LVD-73/23/EEC

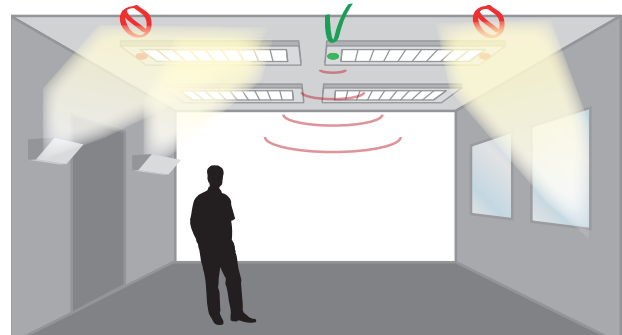
Detection area



Sensor head



Recommended mounting location

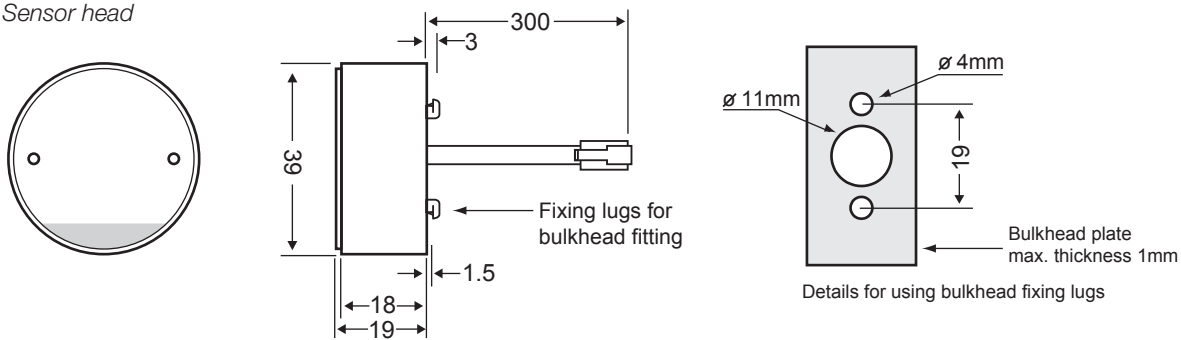


- Avoid direct sunlight entering the sensor
- Do not site within 1m of forced air heating or ventilation.
- Do not fix to a vibrating surface.
- Avoid metallic objects directly in front of the sensor head.
- Do not fit to a suspended luminaire
- When installing the sensor head behind a glass / polycarbonate diffuser will reduce the detection range by approximately 20%.

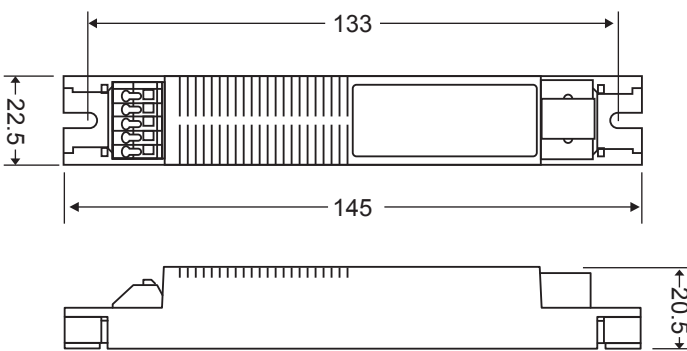
Note: On maximum sensitivity, the detector unit is extremely sensitive to movement and may detect through glass, thin walls or partitions. If this causes a problem, reduce its sensitivity using the SA-IR-PROG Programmer.

Dimensions & Mounting options

Sensor head

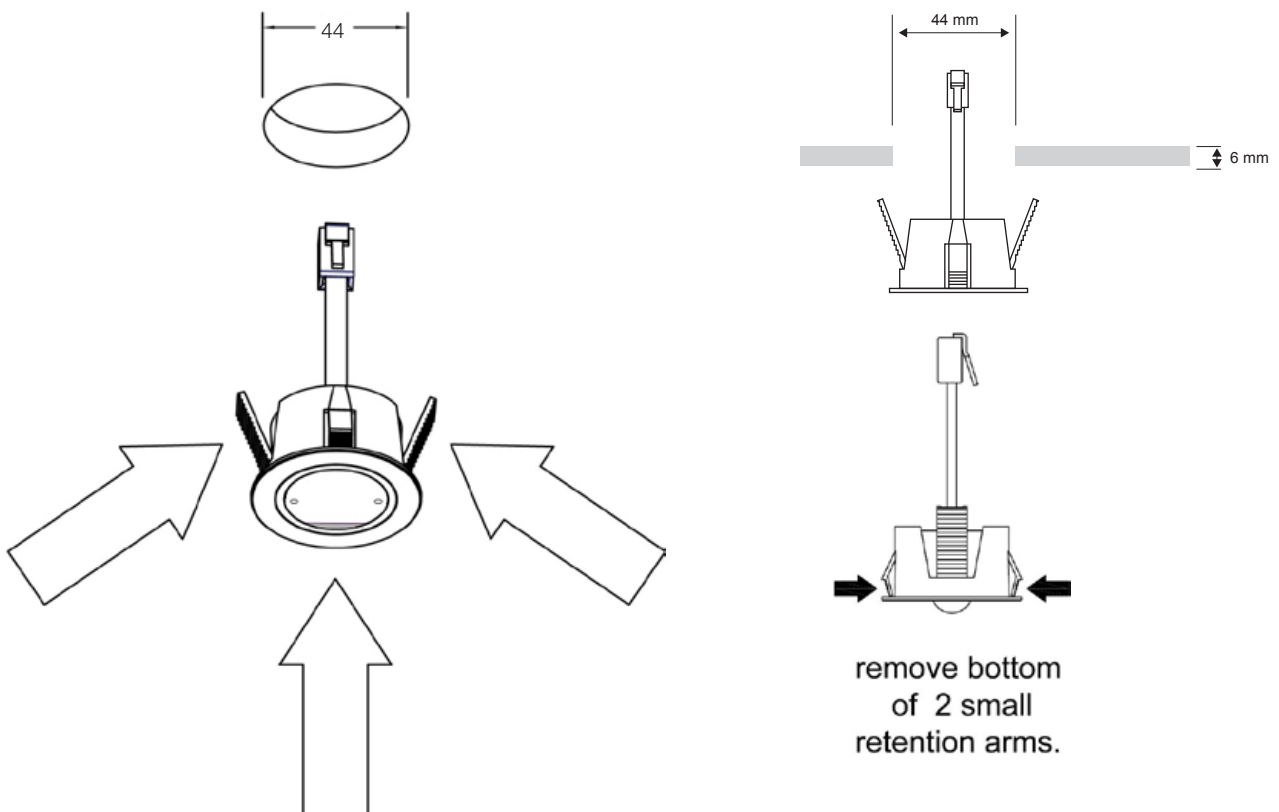


Power supply unit



Flush mounting the sensor head using the flush mount bracket

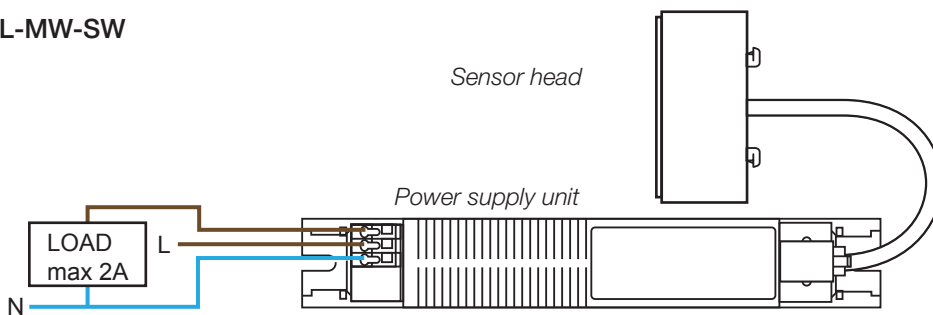
The product can be mounted into a flat panel of a luminaire using the flush mount bracket as shown below. If flush mounting in a panel that is greater than 6mm thick, remove bottom of retention arms with side cutters. A 44mm diameter hole will be required in the panel to mount the flush mount bracket.



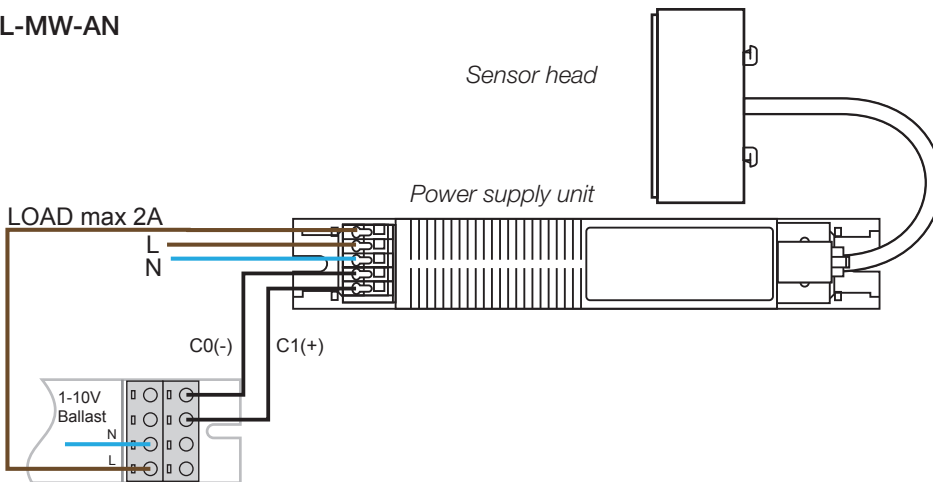
Connections

- Connect the power supply via the terminal block on the power supply unit as shown overleaf. Live supply to the L terminal, Neutral to the N terminal and the load to the LIVE OUT (L/out) terminal.
- Connect the sensor head to the power supply unit using the RJ11 connector, ensuring it “clicks” in place.
- In the case of dimming applications, connect the D+ and D_ connections to the corresponding terminals on the luminaire dimming ballast.
- On power up, the load should come on immediately.
- Vacate the room or remain very still and wait for the load to switch off (on the factory preset, this should take approximately 15 minutes, but the timing out period can be adjusted down to 1 minute to help speed up the setup procedure — please see next section for details on set-up & adjustment).
- Check that the load switches on when movement is detected.

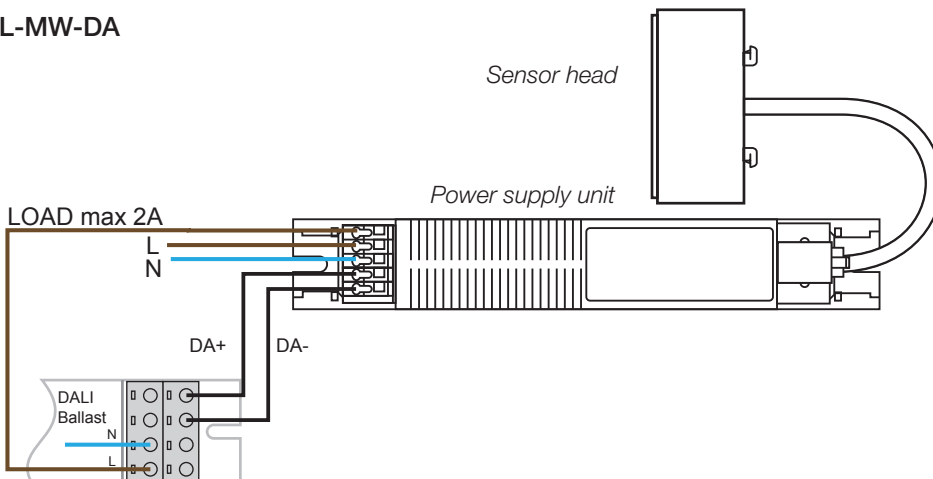
SL-MW-SW



SL-MW-AN



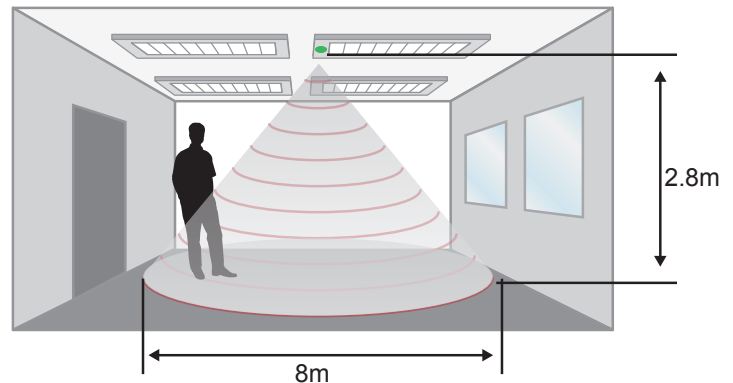
SL-MW-DA



Setup

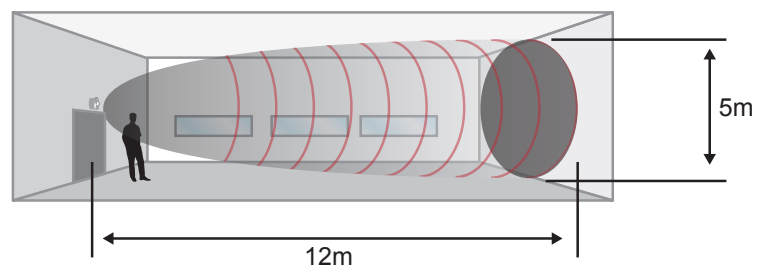
Positioning

- The detector should be sited so that the occupants of the room fall inside the detection pattern shown in picture. Please note that when ceiling mounting, the recommended ceiling height of the sensor head is 2.4m. Note that the lower the sensor is installed the smaller the detection range will be, subject to the parameters shown on the diagram.
- Avoid direct sunlight entering the sensor.
- Do not site within 1m of forced air heating or ventilation.
- Do not fix to a vibrating surface.
- Avoid metallic objects directly in front of the sensor head.
- Do not fit to a suspended luminaire.



Settings adjustment:-

- On initial power up, the factory set default settings are:-
- Time = 20 minutes.
- Lux = Maximum (i.e. lights will switch on in full daylight on detection).
- Sensitivity = Maximum.



Time

All versions — set the time period using the programming handset (see section 6). The factory default is 20 minutes.

Lux












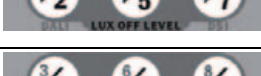



SL-MW-SW — the switch level on lux setting determines the ambient light level at which the lights turn on. This can be set using the programming handset (see section 6). Setting to maximum (level 7) ensures that lights always come on (this is also the default setting).

SL-MW-AN/DA — switch level on described above is available using the programming handset only. The push button lux adjustment determines the dimming output level and can be set using push button the programming handset light level and works as follows:

- During operation the output level varies very gradually. However when the level is changed the unit automatically enters setup mode: in this mode the output level varies rapidly. After the setup time the unit reverts to normal.
- When adjusting, allow the output level to settle by changing very gradually.
- To disable the constant light function completely, set the level to maximum.

Programming

All the following functions can be programmed using the SA-IR-PROG handset:

Preset functions	Number of Shift key presses				Programmer Graphics	Description
	0 	1 	2 	3 		
	Button Activation					
On / Raise	On	Raise				Turn lights on or to raise lights.
Off / Lower	Off	Lower				Turn lights off or to lower lights.
Walk test	On	Off				When set to On this causes a red LED to flash on the sensor when it detects movement. Use this feature to check for adequate sensitivity levels.
Time Out (Time adjustment)	1, 10 & 20 minutes	5, 15 & 30 minutes	10 seconds			Once the detector is turned on, this value sets how long the lights will stay on once movement has ceased.
Lux on level (Switch level on)	2, 5 & 7	4, 6 & 9				Lux level setting to prevent the luminaires being switched on if the ambient light level is sufficient (adjustable between 1 and 9). The luminaires will always be switched on at level 9.
Light Level			2 (200) 5 (500) 7 (700)	4 (400) 6 (600) 9 (900)		Sets a target light level to be maintained by the lighting system.
Lux off level (Switch level off)	2, 5 & 7	4, 6 & 9				Lux level setting to switch the luminaires off during occupancy if the ambient light level goes above the setting (adjustable between 1 and 9). Level 9 will always keep the lights on. This setting can be used for "window row switching".
Sensitivity	1, 5 & 9	3, 6 & 8				Sensitivity level for detecting movement. 1 = low sensitivity 9 = high sensitivity
Defaults			D			Returns the unit to the default settings.
Burn-in	0	50	100			Determines how long the output will be at 100% so that lamps 'burn-in'. The 'burn-in' time is not affected by power supply interruptions.
Shift						Use this button to select the settings in red and blue signified by the 'Shift 1' and 'Shift 2' LEDs

Fault finding

LOAD DOES NOT COME ON

Check to see if the live supply to the circuit is good. Strap across the L and LIVE OUT (where used) terminal to turn the load on.

If the supply and wiring are good, check the LUX level setting. Increase the LUX level setting to allow the controller to turn on at higher ambient natural light level.

If the detection range is smaller than expected, check the diagram above. Rotating the sensor slightly may improve the range.

LIGHTS DO NOT GO OFF

Ensure that the area is left unoccupied for longer than the selected timer setting.

Make sure that the sensor is not adjacent to circulating air, heaters or lamps.

If the unit "false triggers" reduce the sensitivity using the sensitivity settings (see section 4 and 5).

Part numbers

SL-MW-SW	Miniature PIR with switched (relay) output
SL-MW-AN	Miniature PIR with 1-10V Analogue and switched (relay) output
SL-MW-DA	Miniature PIR with DALI and switched (relay) output
Accessories	
SA-IR-PROG	IR programming handset

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 IT: +39 02 55 30 10 33
 DE: +49 6104 78075
 RU: +7 (495) 728 82 91
 HU: +36 1 2393 136
 CN: + 86 512 6763 3078

IMPORTANT NOTICE!

This device should be installed by a qualified electrician in accordance with the latest edition of the IEE wiring regulations.

Product: µDim Microwave sensors User Manual
 Doc No. T13 144 1C
 Issue 2

Product not to be used in the U.S.A.