LEDsmart+ 360 degree Occupancy Sensor

PIR Occupancy Sensor with MultiMate technology

www.glg.lighting





Note: 56 mm ceiling mount enclosure included – no other mounting hardware needed.

Range MMSE/PR

Overview

The LEDsmart+ Occupancy Sensor can be used by itself or can be connected to other LEDsmart+ devices that incorporate MultiMate™ technology.
Used by itself the sensor can switch on a lighting load when movement or Occupancy is detected.
Used with other LEDsmart+ devices, the sensor allows a versatile range of lighting control options including:

- Vacancy Mode (Manual-on / Auto-off)
- Occupancy Mode (Auto-on / Auto-off)
- Occupancy Mode with override-on
- Occupancy Mode with override-off

The LEDsmart+ Occupancy Sensor includes a circular mount kit to allow safe installation into plasterboard ceilings or walls. The elegant circular enclosure has a visible diameter of only 56 mm, with a small visible lens for the sensor.
Alternatively, the electronic mechanism can also be mounted directly into typical Australian switch mechanism apertures.

Features

Low profile PIR occupancy sensor

Suitable for mains load control up to a maximum of 400W

Compatible with other LEDsmart+ devices using MultiMate™

Timeout period from 1 minute to 60 minutes

Incorporates filtering to reduce load brightness variation under conditions of line voltage ripple signal injection

Elegant 56 mm ceiling mount included – no other mounting hardware needed

Active-only two-wire connection – no neutral needed

Multiple Occupancy Sensors can be wired in parallel to extend coverage area

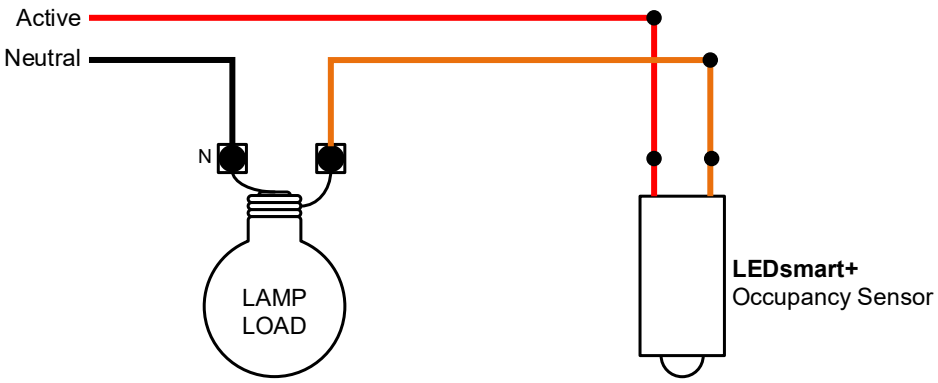
Multiple operating modes

Fits standard Australian wall plate apertures

Suitable for both ceiling and wall mounting

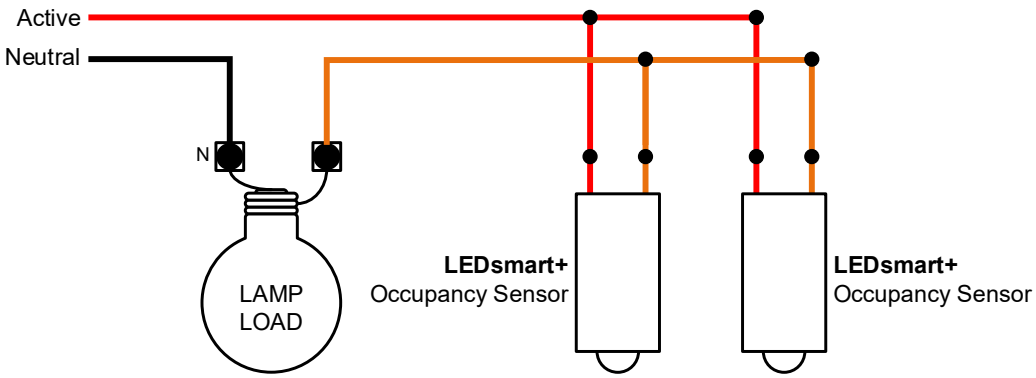
Wiring for stand-alone operation

The Occupancy Sensor is wired in series with the load, as for any normal 2-wire motion sensor or electronic switch.



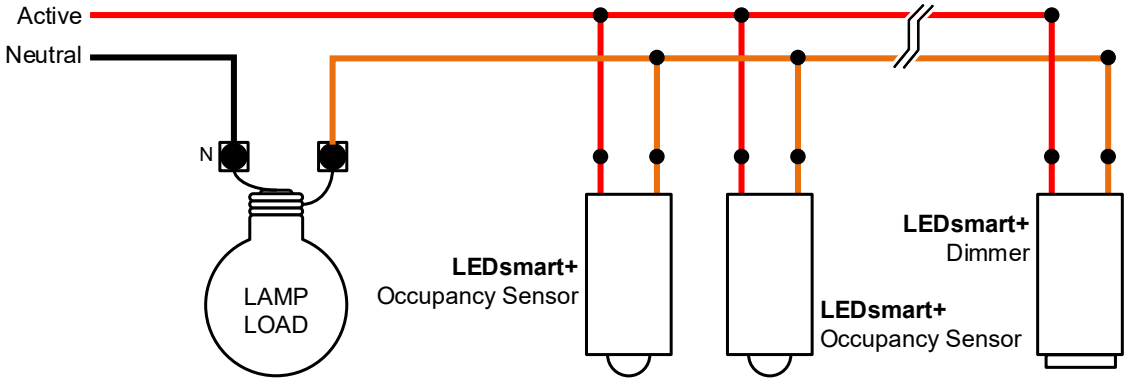
Using Multiple Occupancy Sensors

Using more than one Occupancy Sensor allows a larger coverage area. The sensors are wired in parallel with each other. Up to 8 Occupancy Sensors can be used on a single controlled lighting circuit.



Operation with MultiMate Devices

The Occupancy Sensor can be mixed with LEDsmart+ MultiMate™ dimmers, timers or switches to allow combinations of multi-way control, occupancy sensing, and optional override.



Occupancy Detection

The Passive Infra-red (PIR) sensor uses an advanced detector and lens array to provide the ultimate coverage in its class. The sensor head has two distinct detection sensitivity zone categories, major movement and minor movement.

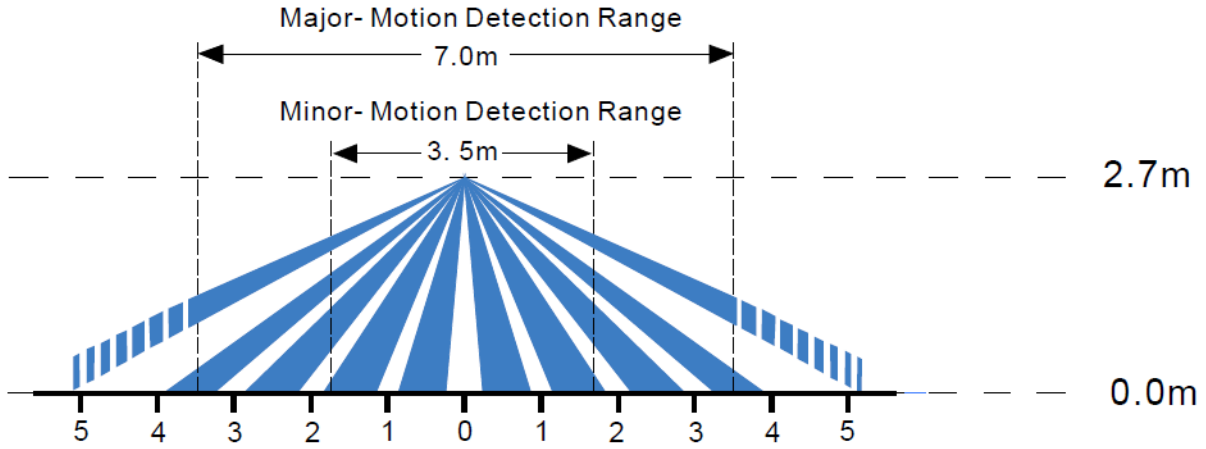
Major Movement[1] (Occupancy) is defined as a 60kg person, walking at >1m/s, across the field of view, with a background ambient temperature of 20°C.

The PIR sensor will detect *Major Movement* within a 7m diameter circular area of its position when mounted at 2.7m from the floor as shown below.

Minor Movement[1] (Occupancy) is defined as a hand and forearm at 0.9m from the floor moving through a 90° arc in <1.5 sec with a background ambient temperature of 20°C.

The PIR sensor will detect *Minor Movement* within a 3.5m diameter circular area of its position when mounted at 2.7m from the floor as shown below.

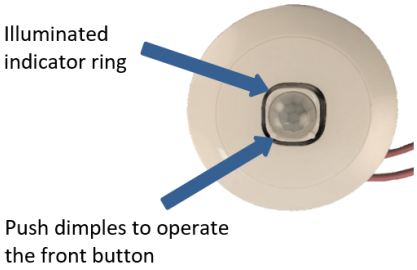
[1] Referenced from the NEMA Guide Publication WD 7-2011, Occupancy Motion Sensors Standard, National Electrical Manufacturers Association, Virginia, USA, 2012



Detection coverage when mounted at 2.7m

Button and Indicators

The Occupancy Sensor includes a local operation button, and an illuminated indicator ring. The button allows local operation and setup. The indicator ring shows when the sensor is controlling the load and provides user feedback in setup mode



Sensor Front Button

The front button on the Occupancy Sensor has these functions:

Tap & Release:	Toggles the load: If the load is OFF, a tap and release sets the load ON. The sensor may start its timing function (depending on setup). If the load is ON, a tap and release sets the load OFF. If Walk Test Mode is active, exit Walk Test Mode.
Press and hold about 3 seconds:	Enter Walk Test Mode.
Press and hold for 10 - 30 seconds:	Enter Setup Mode - See separate section about Setup Mode.

*The front button on the Occupancy Sensor **does not** allow dimming by push and hold*

Occupancy Sensor Indicator Ring

The indicator ring shows the operating condition of the Occupancy Sensor:

Sensor Enabled:	Indicator ON.
Sensor Overridden or Exit Delay active:	Indicator OFF.
Walk Test active:	Indicator blinking rapidly.
Warm up:	After power-up there is a 30 second warm-up period. During this time the indicator is ON and it blinks briefly to OFF.

*Indicator ring ON/OFF status **is not** related to the load On/Off state*

Operating Features

Exit Delay

When the load is turned OFF by another LEDsmart+ MultiMate™ product, an Exit Delay of 10 seconds applies. During the Exit Delay, any Occupancy Sensors on the controlled circuit will not respond to movement.

This allows a person to manually turn the load OFF (using for example a LEDsmart+ MultiMate™ dimmer), then walk out of the space past any Occupancy Sensors, and the Occupancy Sensor(s) will not turn the load back ON again.

Exit Delay only applies for control by LEDsmart+ MultiMate™ dimmers, timers or switches. No exit delay applies if several Occupancy Sensors are used and one of the sensors turns OFF the load.

Level Changes by Other MultiMate™ Devices

LEDsmart+ MultiMate™ dimmers can be used to adjust the lighting level whenever a load is ON. When this lighting level adjustment is made, new detection of movement by an Occupancy Sensor will ***not*** set the level back to the Maximum value configured in that sensor.

User level settings are respected by the Occupancy Sensor: New movement detection will not override the lighting level.

*Note: This function **does not** require the Memory Dimmer option in the Occupancy Sensor to be enabled.*

Product Options

Advanced Timer Option

If the Advanced Timer Option is enabled, then the load will be dimmed for 1 minute at the end of the time out interval. This provides a 1 minute advanced warning that the lighting is about to switch off.

During the 1 minute warning period, movement detection will set the load to the sensor maximum level and restart any timing operations.

The Factory Default condition is that the advanced timer option is ***disabled***.

Toggle or Memory Dimmer Option

The Occupancy Sensor supports both Toggle and Memory Dimmer functions:

Toggle: When the Occupancy Sensor sets the load ON, caused either by motion or pushing the front button, it will set the load to the Maximum Level.

Memory Dimmer:

a. When the Occupancy Sensor sets the load ON, caused either by motion or pushing the front button, it sets the load to the previously-stored Memory Level.
b. When the level of the load is altered from another device, and the load is subsequently turned OFF (either by this Occupancy Sensor or any other device), the level just before setting OFF is stored and becomes the new Memory Level.

The Factory Default conditions are:

- Memory Dimmer function is ***disabled*** (this means Toggle operation is used); and
- The Occupancy Sensor sets the load ON at the default maximum level.

Light Level Option

The Occupancy Sensor includes light level measurement.

When light level measurement is enabled and one of the Occupancy modes is selected, the Occupancy Sensor will only turn the load ON if the sensor is in an ambient light level of less than 10 lux. For a ceiling mounted Occupancy Sensor, this corresponds to less than around 100 – 400 lux on a typical desktop surface. Therefore, if the light level in the space is at the level of a typical office, the sensor is inhibited.

The Factory Default condition is that light level measurement is ***disabled***.

Operating Modes

Occupancy Mode (Auto-On, Auto-Off, no override)

Movement turns the load ON and starts the turn-OFF timer in the sensor.

Turning the load ON from the Occupancy Sensor local button or a LEDsmart+ MultiMate™ device (dimmer / timer / switch) starts the turn-OFF timer in the sensor. The load will always be turned OFF, even if it was turned ON from another device.

When the load is ON, further movement detection retriggers the turn-OFF timer, extending the timeout.

Multiple Occupancy Sensors extend the coverage range. The last sensor to detect movement defines the timeout.

The Factory Default operating mode is ***Occupancy Mode***.

Vacancy Mode (Manual-On, Auto-Off, no override)

Movement is ignored if the lights are OFF.

Turning the load ON from the Occupancy Sensor local button or a LEDsmart + MultiMate™ device (dimmer / timer / switch) starts the turn-OFF timer in the sensor. The load will always be turned OFF, even if it was turned ON from another device.

When the load is ON, further movement detection retriggers the turn-OFF timer, extending the timeout.

Multiple Occupancy Sensors extend the coverage range. The last sensor to detect movement defines the timeout.

Occupancy Mode with Override On

Same as ***Occupancy Mode***, but an ON-Override is added. Manually setting the load ON stops all timing operations.

Override Operation

- Turn the load ON from the Occupancy Sensor local button; or
- Adjust the level from another LEDsmart+ MultiMate™ product: any level that is not OFF will cause override.

When override is active, the load remains ON indefinitely and movement has no effect.

To cancel override, turn the load OFF from an Occupancy Sensor local button or a connected LEDsmart+ MultiMate™ device. This will turn the load OFF and resume normal Occupancy Mode operation.

Occupancy Mode with Override Off

If an Occupancy Sensor was the most recent device to turn the load OFF, or the Occupancy Sensor has just powered up, then operation is the same as ***Occupancy Mode***. An OFF-override is added: Manually setting the load OFF stops all timing operations and movement detection.

If several Occupancy Sensors are used, movement or a sensor timeout does ***not*** cause an override. Multiple Occupancy Sensors extend the coverage range. The last sensor to detect motion defines the time-out.

Override Operation

- Turn the load OFF from the Occupancy Sensor local button; or
- Turn the load OFF from another LEDsmart+ MultiMate™ device (dimmer / timer / switch).

When override is active, the load remains OFF indefinitely and movement has no effect.

To cancel override:

- Turn the load ON manually from an Occupancy Sensor button; or
- Adjust the level from another LEDsmart+ MultiMate™ product: any level that is not OFF will cancel the override.

After cancelling override, the Occupancy Sensor will detect movement and turn the load ON with timing.

Compatible MultiMate™ Devices

If required, the LEDsmart+ Occupancy Sensor can be used in conjunction with other LEDsmart+ devices that include MultiMate™ technology. Compatible devices are listed below.

Item	Description	Features
MMDM/RT	LEDsmart+ Rotary Dimmer/Switch	Rotary Dimmer with built in on/off switch and multi-way control
MMDM/PB	LEDsmart+ Push Button Dimmer	Push Button Dimmer with built in on/off switch and multi-way control
MMTM/PB	LEDsmart+ Push Button Minute Timer	Push Button Timer programmable between 1 minute and 30 minutes with multi-way control
MMTH/PB	LEDsmart+ Push Button Hour Timer	Push Button Timer programmable between ¼ hour and 7½ hours with multi-way control
MMSW/PB	LEDsmart+ Push Button Electronic Switch	Push Button Electronic Switch for LED lighting with built in on/off switch and multi-way control
MMDM/DD	LEDsmart+ Digital Level Display	Level Display for use with any dimmer
STDM/BT	Diginet Sitara Bluetooth Dimmer	Bluetooth wireless connectivity and operation with LEDsmart+
MMSR	LEDsmart+ Slave Relay Device	General Purpose ON/OFF control via trailing edge dimming devices



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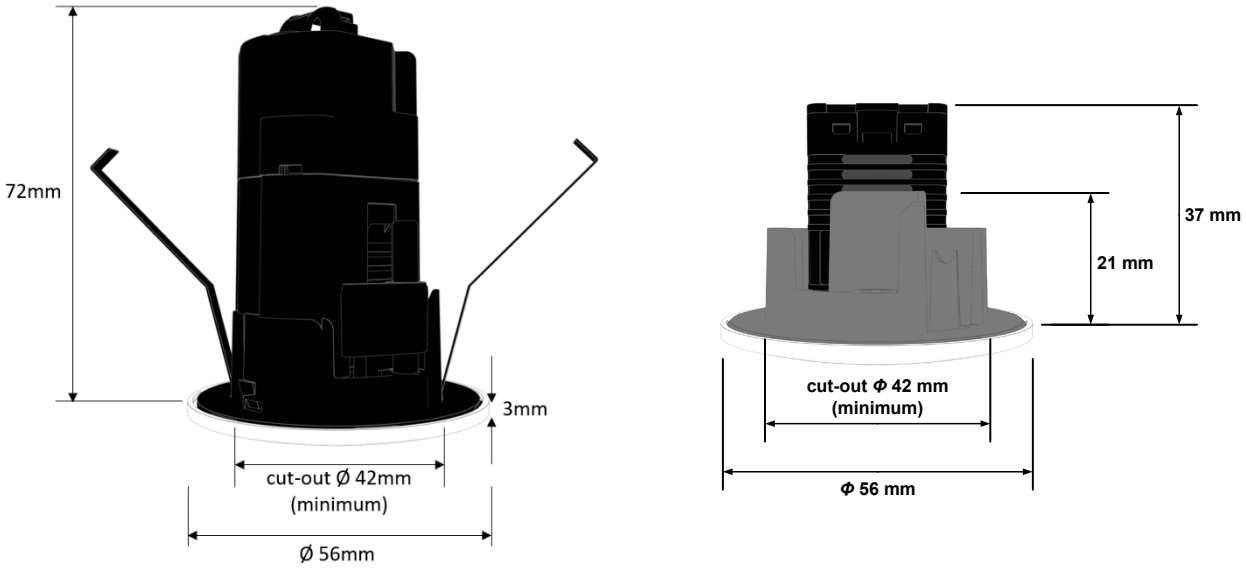
Product specifications

Parameter	Specification
Nominal Line Voltage Amplitude Range	220-240Vac
Line Voltage Frequency	50Hz Nominal (47 - 53Hz)
Load Brightness Control Range	0% to 100% (typical for LED loads)
Rated Load	Refer Compatible Loads
Minimum Load	1W
Dimensions	See separate Diagram
Weight	100g
Operating Temp. Range	0-50^{o}C
Operating Humidity Range	< 95% RH non-condensing
Housing Material type	Flame Retardant Polycarbonate
IP Rating	IP20
Light Level Threshold (when enabled)	10 lux on the Occupancy Sensor face For ceiling mount, corresponds to approximately 100 – 400 lux incident on a desktop
Maximum cable distance from any LEDsmart+ device to the parallel junction point	50m (for example, an Occupancy Sensor and a dimmer can be separated by up to 100m provided that the maximum distance from the furthest dimmer to the parallel junction point is no more than 50m).
Power-up state	Power up OFF
Warm-up Delay	30 seconds (after power up)
Maximum number of sensors connected in parallel	8
Compliance	RoHS COMPLIANT CE

Compatible Load types

Load Symbol	Load Type	Maximum Load	Notes
	Dimmable LED Lamps / Drivers	400W	The LED driver must be dimmable. Maximum permitted number of drivers is 400W divided by driver nameplate power rating. Due to variety of LED lamp designs, maximum number of LED lamps is further dependent on power-factor result when connected to dimmer.
	Electronic Transformers	400W	
	Standard Iron-Core Transformers	250W	Due to variety of transformer designs, maximum LV lighting load is further dependent on transformer efficiency.
	Toroidal Iron-Core Transformers	300W	
	Incandescent	350W	
	Dimmable CFLs	400W	Due to variety of CFL designs, maximum number of CFL lamps is dependent on particular CFL make/model.

Dimensions



CONTACT INFORMATION

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