Miniature PIR presence detector - DALI dimming

Cat. No(s): 0 489 53

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1. USE

This miniature PIR (passive infrared) presence detector provides automatic control of lighting loads with optional manual control. This direct dim variant controls DALI or DSI digital dimming ballasts.

The unit detects movement using a PIR sensor and turns the load on. When an area is no longer occupied, the load will switch off after an adjustable timeout period.

These units come complete with accessories allowing flush mounting in suspended ceilings or surface mounting on ceilings, or side mounting on a luminaire.

All functionality is fully programmable using an infrared configurator.

2. TECHNICAL CHARACTERISTICS

PIR sensor
Detects movement within the unit's detection range, allowing load control in response to changes in occupancy.

IR receiver
Receives control and programming commands from the infrared configurator.

Light level sensor
Measures the overall Lux level in the detection area.

LED status
The LED flashes red to indicate the following:

Walk test LED active	🔴 *When movement is detected*
Valid setting received	🔴

RJ11 connector
The sensor head has an RJ11 socket for connection to the power supply.

Power supply
This power supply has a 6 A relay. It also has connections for an auxiliary switch that can be used to turn on the lighting manually.
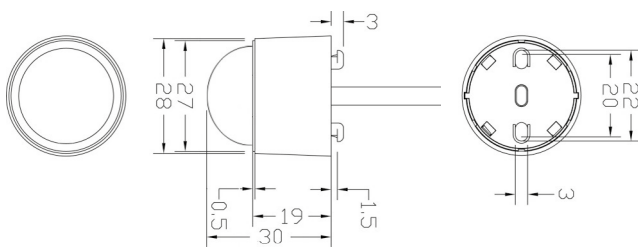
2. TECHNICAL CHARACTERISTICS *(continued)*

Sensor head	Power supply
PIR lens IR receiver Light level sensor Status LED	

Dimensions	See dimensions section
Weight	Sensor head: 0.02 kg Power supply: 0.08 kg
Supply	230 VAC +/-10%
Frequency	50 Hz
Number of ballasts	Up to 30 dimming ballasts
Power consumption	ON 923 mW, OFF 308 mW
Terminal capacity	1.5 mm²
Max. power factor correction capacitance	40 µF
Working temperature	-10°C to +30°C
	5 to 95% non-condensing
Material	Sensor head, side mounting bracket: PA (polyamide) Power supply: PA (polyamide) Flush holder: Flame-retardant ABS
Type	Class 2
Protection class	IP 40

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2. TECHNICAL CHARACTERISTICS (continued)

①	②	③	④	⑤
230 V∿ 6 A	6 A	6 A	3 A	6 A

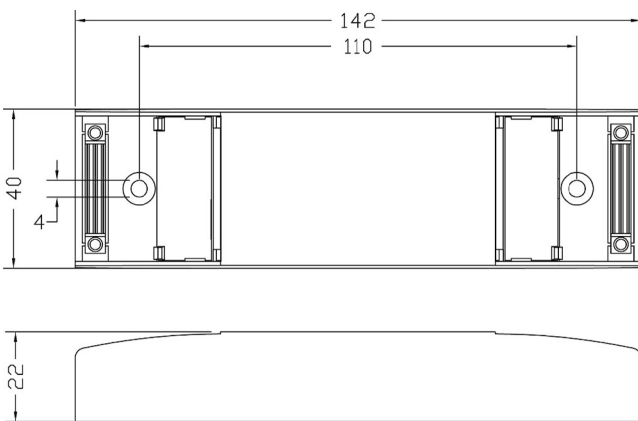| ⑥	⑦	⑧	⑨	⑩
230 V∿ 6 A	3 A	3 A	3 A	3 A

1 - Halogen lamps

2 - ELV halogen lamps with separate ferromagnetic ballast

3 - Fluorescent tubes with separate ferromagnetic ballast

4 - Compact fluorescent lamps with separate ferromagnetic ballast

5 - ELV halogen lamps with separate electronic ballast

6 - Fluorescent tubes with separate electronic ballast

7 - Compact fluorescent lamps with built-in electronic ballast

8 - Compact fluorescent lamps with separate electronic ballast

9 - LED lamps with separate electronic ballast

10 - LED lamps with built-in electronic ballast
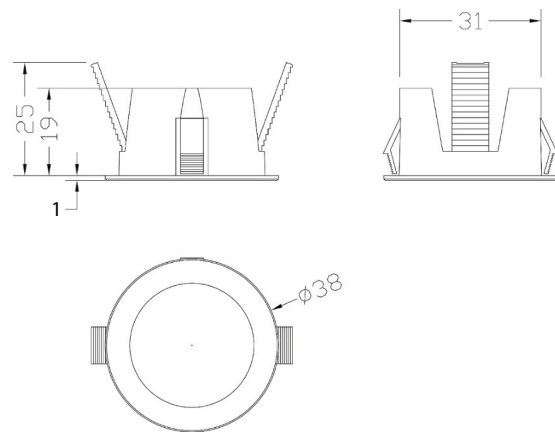
3. DIMENSIONS
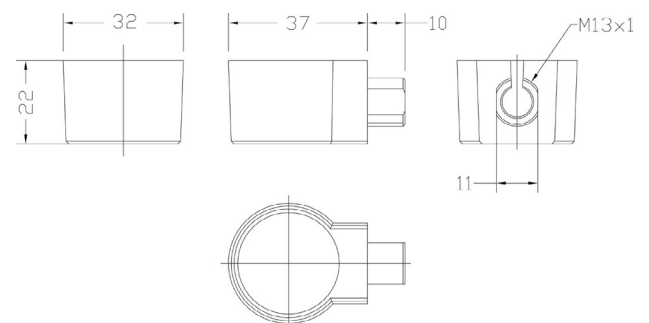
■ **1.1 Sensor head**

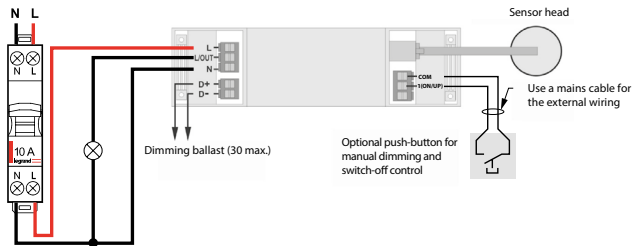■ **1.2 Power supply**

■ **1.3 Surface mounting accessory**

■ **1.4 Side mounting accessory**

4. CONNECTION

Wire the products as shown in the diagrams. Auxiliary switches are optional.

An auxiliary switch can be used to turn off the light and adjust the dimming level (up/down) - on/off.

⚠ The maximum cable length between the sensor head and the power unit is 1 metre

5. INSTALLATION

The product is designed to be surface mounted on the ceiling or flush mounted, or directly on a luminaire.

The detector should be sited so that the occupants of the room are inside the detection area, at a recommended ceiling height of 2.8 m. The lower the sensor is installed, the smaller the detection range will be, subject to the parameters shown on the detection diagram.

- For optimum operation of the lux sensor, the lens must be shielded as much as possible from the light source.
- If flush mounting in a panel > 6 mm thick, remove the bottom of the retaining clips with a cutter.
- Avoid direct sunlight entering the sensor.
- Do not site within 1 m of forced air heating or ventilation.
- Do not fix to a vibrating surface.

Surface mounted on luminaire or the ceiling

Use the lugs on the back of the detector to secure it into thin sheet metal (1 mm max)

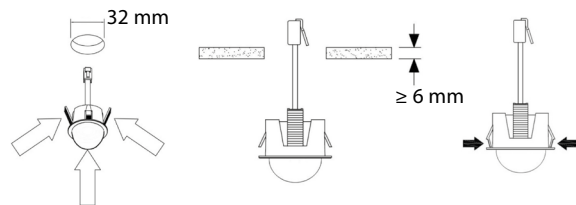
ø 19.5 mm
3.5 mm
19 mm

Side mounting on luminaire
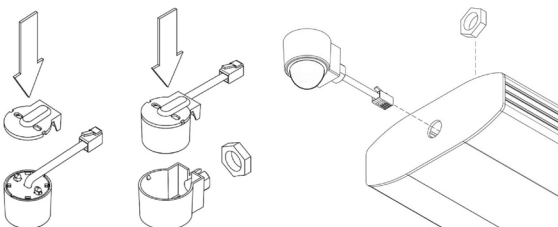
5. INSTALLATION (continued)

Flush mounting

The product can be mounted using the flush mounting ring as shown. If flush mounting in a material > 6 mm thick, remove the bottom of the retaining clips with a cutter.

A 32 mm diameter hole will be required to insert the flush mounting ring.

32 mm
≥ 6 mm

Power-up test procedure

When power is applied to the unit, the load will turn on immediately.

Set the timeout to 10 seconds, vacate the room or remain very still and wait for the load to switch off.

Check that the load switches on when movement is detected.

The unit is now ready for programming.
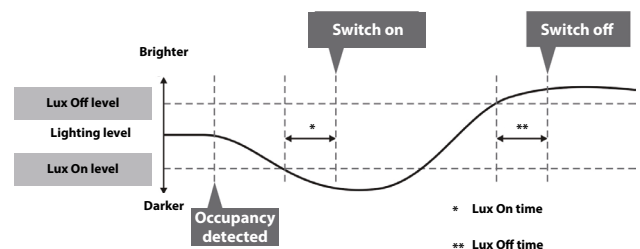
6. OPERATION

Detection mode

- Presence: When movement is detected the load will automatically turn on. When an area is no longer occupied, the load will switch off automatically after an adjustable time period.
- Absence: The load is manually switched on. When an area is no longer occupied, the load will switch off automatically after the adjustable time period has elapsed.
- Manual control: Short press to turn on, short press to turn off, press and hold for dimming cycle.

In either case, Presence/Absence, sensitivity to movement of the PIR sensor can be adjusted using the Sensitivity parameter.

HINT: To assist in setting the sensitivity, turn on the Walk test LED which will flash red when movement is detected.

Switching according to Lux level

Occupancy detection can be made dependent on the ambient light level using the Lux On Level and Lux Off Level parameters

Switch on
Switch off
Brighter
Lux Off level
Lighting level
Lux On level
Darker
Occupancy detected
*
**
* Lux On time
** Lux Off time

Regulation according to light level

The detector measures the overall light level in the detection area, then calculates and dims the luminaire lighting to achieve a preset Lux level (maintained lighting or daylight harvesting).

7. SETTINGS

The detector functions are controlled by a number of parameters which can be changed or programmed by an infrared configurator.
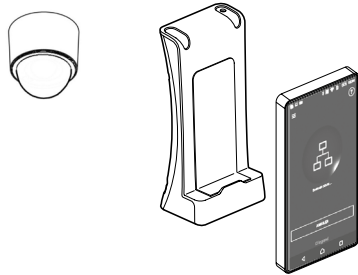
In combination with configuration tool 0 882 40, the Legrand Close Up smartphone app can be used to view and modify all the detector parameters with online help.

Point the infrared configuration tool at the detector for all read/write operations.

Valid commands will be indicated by a red flashing LED on the product and the lighting switches off automatically for all read/write operations.

Before changing the settings, an initialisation operation must be performed as suggested in the Legrand Close Up configuration app:

1 – Click on "Scan product settings"

2 – Click on "Settings details/copy"

3 – In the menu at the top right (…) select "Initialise"

4 – Click on "Write product settings"

This operation allows predefined setting of certain parameters.

Parameter	Default value	Value after initialisation	Range/ option	Description
Output channel modes				
Switching only	-	-	-	Only the relay part is used
Switch and dim together	✔	✔	-	The 2 outputs are synchronised and go ON/OFF at the same time
Switch and dim separately	-	-	-	The 2 outputs are not synchronised and the DALI luminaire can be turned off without switching the relay output OFF
General parameters				
LED operation test	Off	-	On or Off	When this option is activated, a red LED on the sensor flashes when it detects movement. Use this function to check that the sensitivity levels are suitable.
Inhibit detection	No	-	Yes/No	Disables presence/absence detection so that the detector does not control switching, only dimming. Use this mode for light regulation without automatic control according to occupancy.
Timeout	20 minutes	-	0 to 99 minutes	Once the detector is turned on, this value sets how long the lights will stay on once movement has ceased. Select 0 for a 10-second period (for commissioning only).
Manual timeout period	10 minutes	-	0 to 99 minutes	When a manual operation occurs, either via the switch input or the infrared, it invokes the timeout period. Example 1: A detector in presence mode has a detector timeout of 15 minutes and a manual timeout of 3 minutes. When the user leaves the room, they press the off button. The sensor will revert to automatic mode after 3 minutes. Walking back into the room will turn the lights on. Example 2: Using the settings above, the user turns the lights off (say for a presentation) but stays in the room. Every time a movement is detected, the manual timeout period is re-triggered, but when it doesn't pick up over a short timeout period, the detector will revert to automatic mode. This means that the lights may come on inadvertently during the presentation, even if the occupants are still present during the manual timeout period, so adjust the timing carefully.
Sensitivity On	8	9	1 (min) to 9 (max)	Sensitivity level for detecting movement when the detector is already on.

7. SETTINGS (continued)

Parameter	Default value	Value after initialisation	Range/ option	Description
General parameters (continued)				
Sensitivity Off	8	9	1 (min) to 9 (max)	Sensitivity level for detecting movement when the detector is off.
On delay	0 minute	-	0 to 99 minutes	The On delay allows the first channel to switch on after the second channel. A typical application for this would be when a detector is controlling lighting and air conditioning in an area. When the occupant is detected, the lighting will be turned on immediately, whereas the air conditioning may be turned on after 15 minutes. If the area is vacated before the detector times out, then the air conditioning will not have come on. The delay can be set for channel 1 only using this parameter.
Detection mode	Presence	-	Presence or absence	Presence mode allows the output to turn on when movement is detected and off when movement ceases. Absence mode allows the output to turn off when movement ceases, but must be manually enabled first.
Lux On Level	999	145	1-950, 999: OFF dimming regulation	Sets a minimum light level below which the PIR sensor is enabled, allowing the lights to be turned on by movement. Note: The "Lux Off level" value must always be greater than the "Lux On level" value.
Lux Off Level	999	225	1-950, 999: disabled	Sets a maximum light level above which the PIR sensor is disabled, preventing the lights from being turned on by movement.
Lux On time	0	-	0 to 99 minutes	When the ambient light drops below the Lux On Level, this is the delay before the lights comes on. If at any time during the timed delay the Lux level position is reversed, the process is cancelled. A minimum time of 15 seconds is defined for a value of 0. If you try to turn on the lights using a manual control, the lights will come on regardless of the ambient light level. However, if there is sufficient ambient light, they will turn off again after the Lux Off time.
Lux Off time	0	1	0 to 99 minutes	When the ambient light exceeds the Lux Off Level, this is the delay before the lights go out. If at any time during the timed delay the LUX level position is reversed, the process is cancelled. A minimum time of approximately 15 seconds is defined for a value of 0.
Dimming parameters				
Lux level for regulation	999	150	1-950, 999: disabled	Sets a target light level to be maintained by the lighting system
Max value	99%	-	0 to 99%	Maximum dimming output level.
Min value	0%	82%	0 to 99%	Minimum dimming output level.
On value	99%	-	0 to 99%	Dimming output level when switched on (0-99).
Off value	0%	-	0 to 99%	Dimming output level when switched off (0-99). If a non-zero off value is set, the output will toggle between this value and completely off depending on the switch level On and Off values. For example, if it is light outside, the fittings will be off if there is no occupancy. If it is dark outside, they will adopt the preset off value. This feature is only enabled if "Min value" is set to 99.
Manual control modes				
Manual control mode	✔	-	Shared 2-position push-button	A single centre-biased retractive switch will be used to control both channels at the same time.
	-	-	Separate 2-position push-button	-
	-	✔	Synchronised 1-position push-button	A single push-button controls both channels at the same time.
	-	-	Separate 1-position push-button	-

8. TROUBLESHOOTING

1. If the load does not turn ON

- Check that the live supply to the circuit is correct.
- Check that the load is functioning by bypassing the sensor (link terminals L and L/Out).
- If the detection range is smaller than expected, see the Performance section. Rotating the sensor slightly may improve the detection range.

2. If the load does not turn OFF

- Ensure that the area is left unoccupied for longer than the timeout period.
- Ensure that the sensor is not affected by draughts, heaters or lamps.

3. In the event of "false tripping", reduce the sensitivity settings.

4. If the light level is often too low

- Increase and adjust the value of the "Lux level for regulation" parameter: from 150 up to 200.
- Adjust the value of the following parameters:
  • Lux On level = Lux level for regulation - 5
  • Lux Off level = Lux level for regulation x 1.5

Example:
- Lux level for regulation = 180
- Lux On level = 175
- Lux Off level = 270
- Lux Off time = 1
- Min value : 82 %

### 5. If the lighting loads never switch off (minimal lighting)

• Reduce and adjust the value of the "Lux Off level" parameter" in steps of 10 or 20
  Example:
  - Lux level for regulation = 150
  - Lux On Level = 145
  - Lux Off Level = 215
  - Lux Off Time = 1
  - Min value : 82 %

6. If the light level is too high

- Reduce and adjust the value of the "Lux level for regulation" parameter.
- Adjust the value of the following parameters:
  • Lux On level = Lux level for regulation - 5
  • Lux Off level = Lux level for regulation x 1.5
  Example:
  - Lux level for regulation = 130
  - Lux On level = 125
  - Lux Off level = 195
  - Lux Off time = 1
  - Min value : 82 %
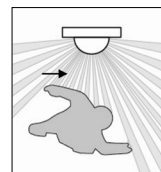
9. PERFORMANCE

Detection area
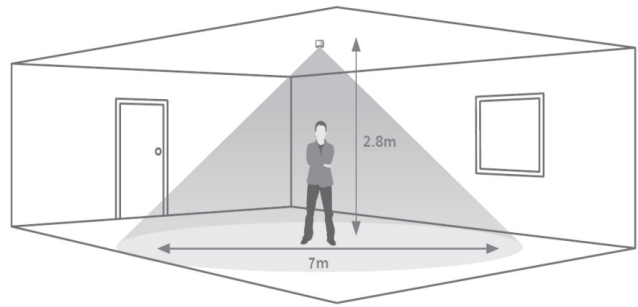
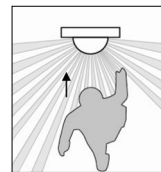Area of high sensitivity — Area of lower sensitivity

NOTE: The illustration shows an average of the walk across and walk towards figures below.

Walk across

Height	Diameter
7 m	16 m
2.8 m	9 m

Walk towards

Height	Diameter
7 m	10 m
2.8 m	5 m

10. CARE

Keep the lens clean, use a cloth to clean the surface.
Do not use acetone, tar-removing cleaning agents or trichloroethylene.

> **CAUTION: Always test before using other special cleaning products.**

11. STANDARDS

Directive: CE

Installation standards: NFC 15-100

Product standards: NF EN 60730-1

Environmental standards:

- European Directive 2012/19/EU: WEEE (Waste Electrical and Electronic Equipment)

- European Directive 2011/65/EU and 2015/863. RoHS (Restriction of Hazardous Substances)

- Decrees and/or regulations: Public buildings, workplace buildings,high-rise buildings

Conformity:

- EMC-2014/30/EU

- LVD-2014/35/EU