TECHNICAL GUIDE

LIGHTING MANAGEMENT
SELF-CONTAINED RANGE

INSTALLATION AND USER GUIDE

THE GLOBAL SPECIALIST IN ELECTRICAL AND DIGITAL BUILDING INFRASTRUCTURES

legrand®

Contents

INTRODUCTION

INTRODUCTION

Legrand's self-contained range is suitable for a wide range of applications. It can be used to control all loads available on the market (ON/OFF load, dimmable load, motors for ventilation or blinds, etc.) and comply with the standards required by law (RT2012, public buildings, etc.). The range offers choices for installation in all types of location (IP index ranging from IP20 to IP66 depending on the catalogue numbers) and for all types of fitting (suspended ceiling/ceiling/surface mounting on wall/flush-mounting on wall/replacing an existing switch).

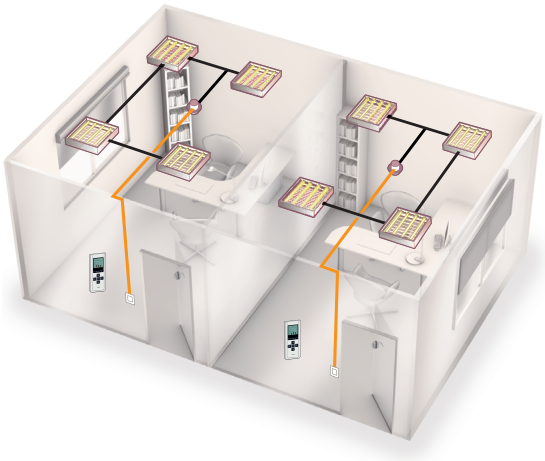
It is easy to set their parameters using an IR configuration tool which does not require any work to be carried out on the product (no need for a ladder or screwdriver).

The lighting management range consists of:

- Lighting management sensors
  These control the switching ON/OFF of loads, and can be overridden by pushbuttons or remote controls.
  Some controllers have a "presence" output to control ventilation.
- Suspended ceiling controllers used together with one (or more) BUS/SCS sensors
  These control dimmable loads (DALI/DSI, 1-10 V, LV/ELV halogen, LED, etc They can also be overridden by pushbuttons and remote controls. Some controllers have a "presence" output to control ventilation, and an output for controlling a blind or projector screen.

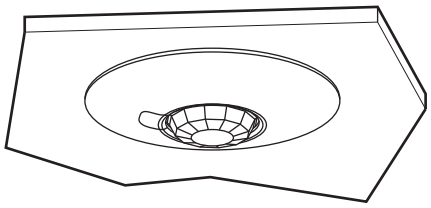
INSTALLATION PRINCIPLE

SELF-CONTAINED SENSOR

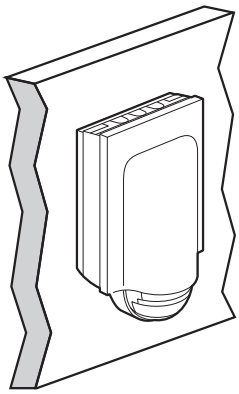


- 1 or more sensors/1 circuit
- ON/OFF load
- Option of adding an override switch
- Option of adding a remote control
- Option of adding a ventilation control (see technical data sheet)

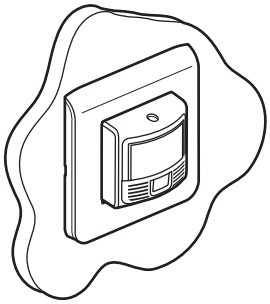
• Types of fitting:



Suspended ceiling



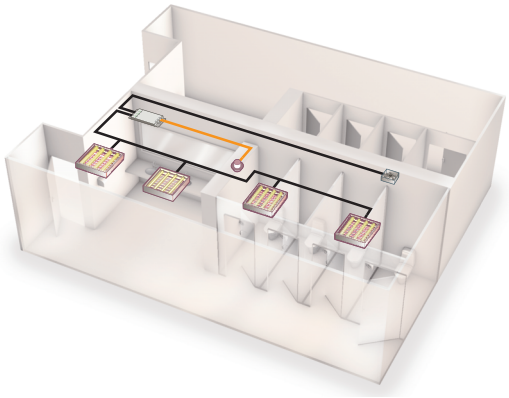
Surfaced mounted on wall

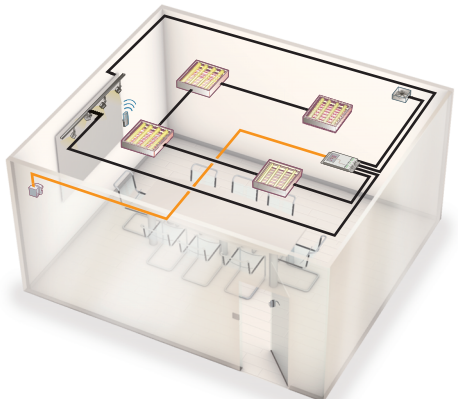


Flush mounted on wall

ANALOGUE CONTROLLER

Power units for suspended ceilings, must be combined with a control unit (sensor and/or pushbutton)



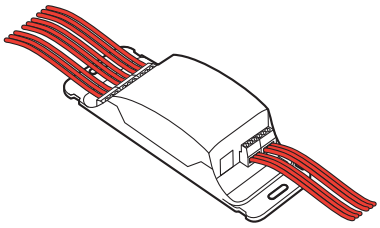


- 1 or more sensors/2 circuits
- ON/OFF load, 1-10 V, DALI
- Option of adding an override switch
- Option of adding a remote control
- Option of controlling ventilation
- Option of dual-area control (corridor side/window side)

• **Fast connection**

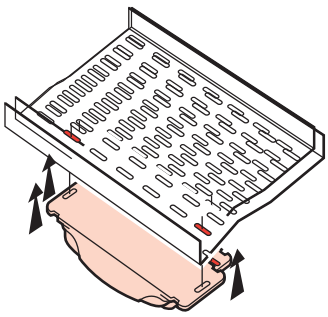
Type of terminals:

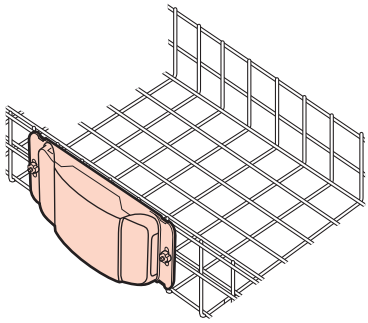
- RJ 45 for sensors
- Screw terminal block for pushbuttons



• **Installation in suspended ceiling**

The controllers are fixed on the cable trays.

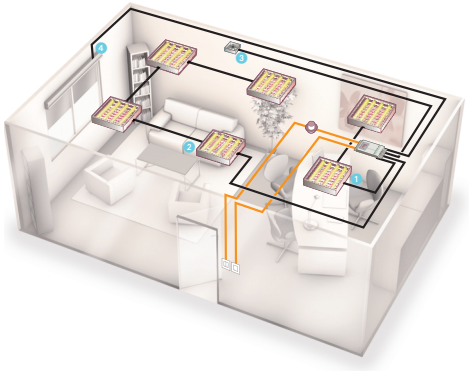




INSTALLATION PRINCIPLE

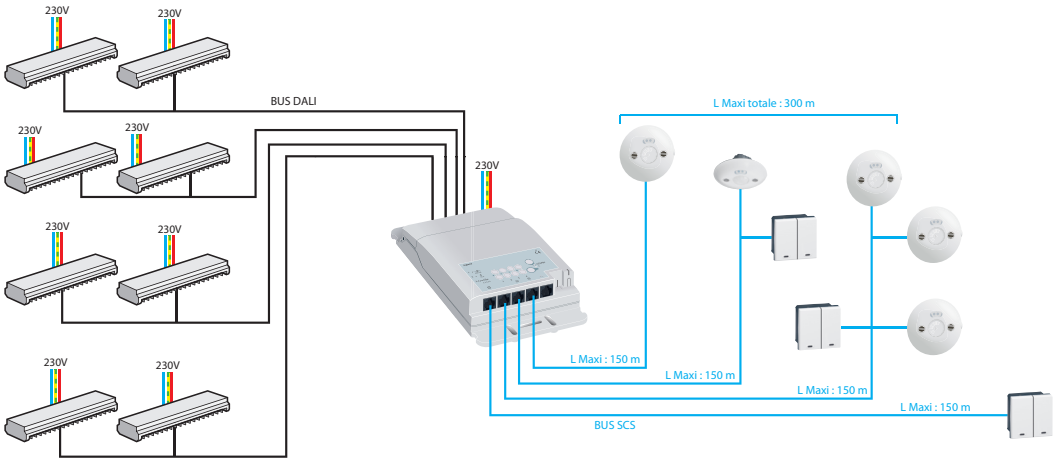
SCS BUS CONTROLLER

Power units in suspended ceilings, control units and sensors are connected via a BUS system.



- 1 or more sensors/several circuits
- ON/OFF load, 1-10 V, DALI
- Option of adding override switches
- Option of adding remote controls (scenarios)
- Option of controlling ventilation
- Option of controlling blinds or a projector screen
- Option of dual-area control (corridor side/window side)

• **Installation recommendations**



The wiring of an SCS BUS system requires the installer to comply with very precise installation recommendations in order for it to work correctly.

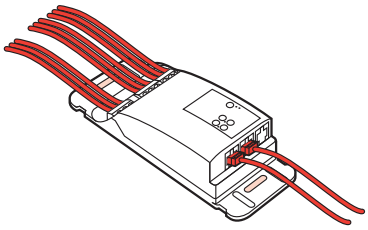
Wiring the SCS BUS consists of connecting all devices in accordance with the regulations:

- The maximum length of an SCS BUS is 300 m (total of all 4 buses)
- The maximum length of the SCS BUS between the controller and a BUS product must not exceed 150 m (maximum length of one BUS)
- The SCS BUS cable is not polarised
- The end of the BUS cable must not hang loose
- Products can be connected in a line (tap-offs) or star configuration (octopus)
- Loops are prohibited
- The total consumption of all the manual controls and sensors must not exceed 200 mA per suspended ceiling controller

SCS BUS CONTROLLER (CONTINUED)

• Fast connection

Terminal type: RJ 45

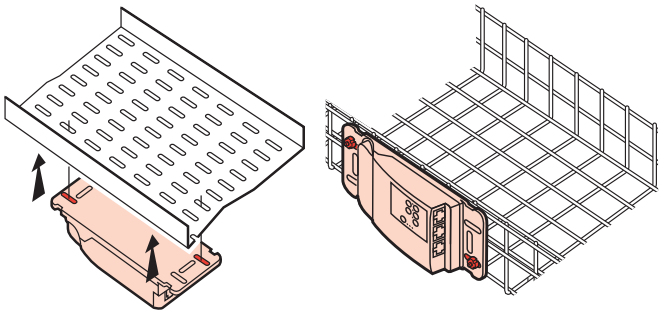


To use an RJ 45 cable with a manual control:

- Cut the RJ45 plug on the control side
- Connect pair 7/8 (brown wire and brown/white wire) to the green control unit connector

• Installation in suspended ceiling

The controllers are fixed on the cable trays.



• SCS cables must be installed in low-voltage cable trays (see NF C 15 100)

For SCS BUS cable, use Cat. No. 0 492 33

• Consumption of products on the BUS

Manual control = 10 mA, sensor = 20 mA

PRODUCT PRESENTATION AND INSTALLATION

All the information is available on:
www.legrandoc.com

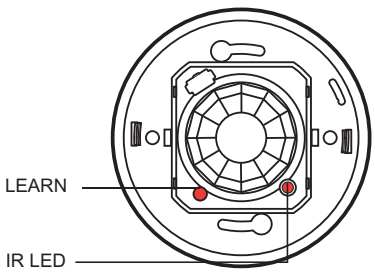
LIGHTING MANAGEMENT SENSORS

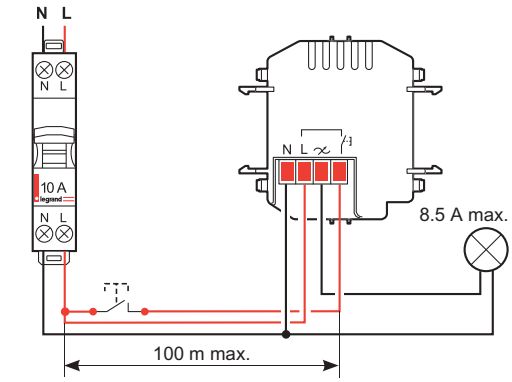
Sensors for work areas

- **Sensor 0 488 06**

Dual-technology sensor (infrared and ultrasonic)

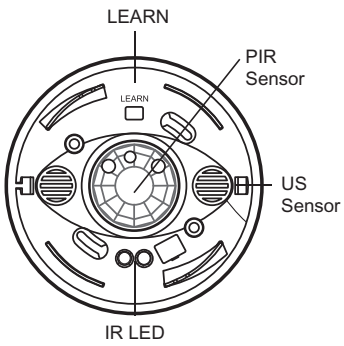
For fixing in suspended ceiling, IP20
360° detection, 8 m diameter



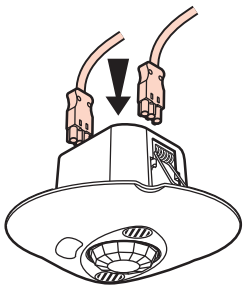


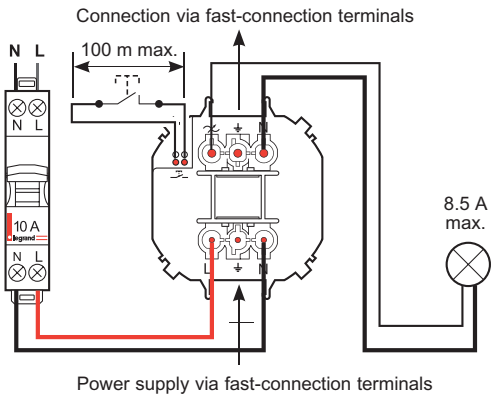
- **Sensor 0 488 09**

Dual-technology sensor (infrared and ultrasonic)
For fixing in suspended ceiling, IP20
360° detection, 8 m diameter



Fast connection





LIGHTING MANAGEMENT SENSORS (CONTINUED)

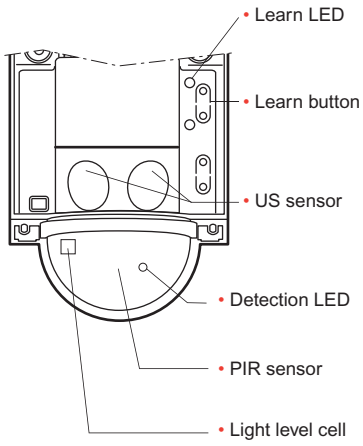
Sensors for work areas (continued)

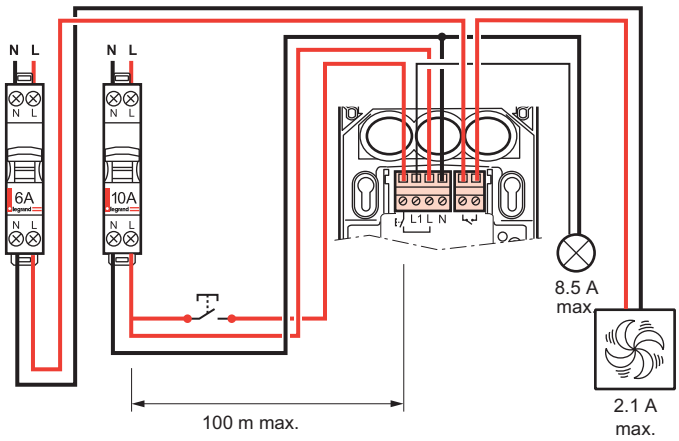
- **Sensor 0 489 16**

Dual-technology sensor (infrared and ultrasonic)
Surface mounting on walls, IP42
180° detection, 6 m x 8 m zone
Equipped with a "presence" output for controlling ventilation

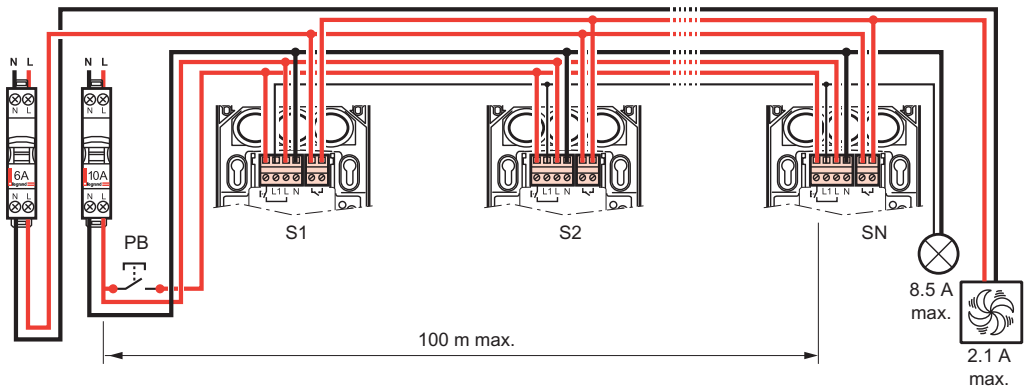
- **Sensor 0 489 14**

Infrared sensor
Surface mounting on walls, IP42 ,
180° detection, 6 m x 12 m zone
Equipped with a "presence" output for controlling ventilation





Wiring with several sensors

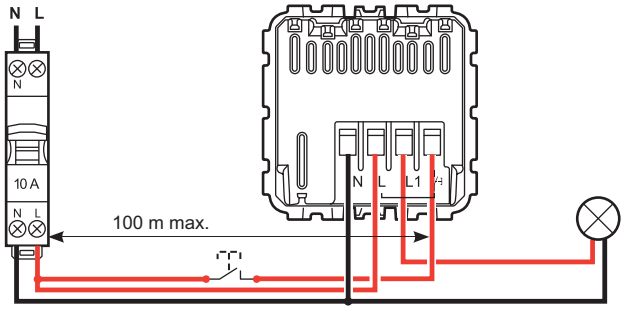


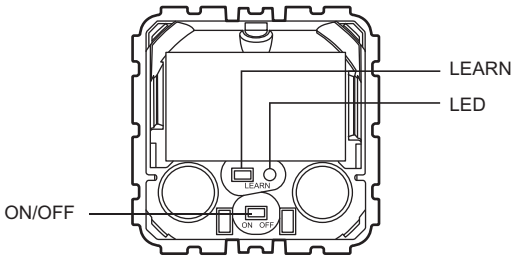
LIGHTING MANAGEMENT SENSORS (CONTINUED)

Sensor for offices

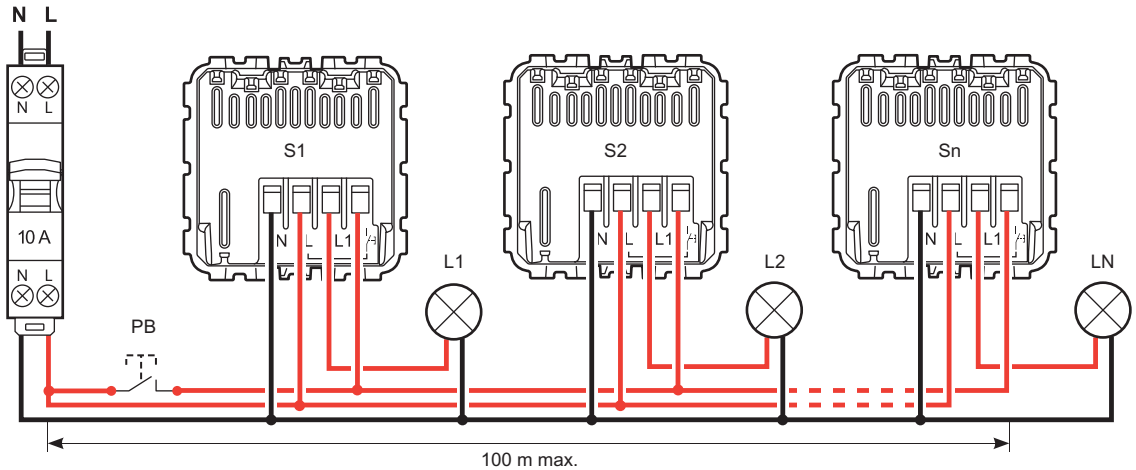
• **Sensor 0 784 52**

Dual-technology sensor (infrared and ultrasonic)
Flush mounting on walls on a Mosaic frame, IP41
180° detection, 6 m x 8 m zone





Wiring with several sensors

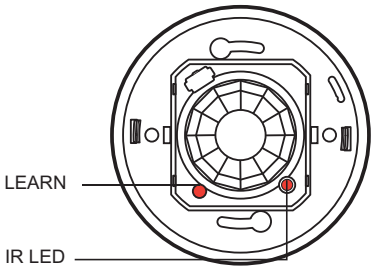


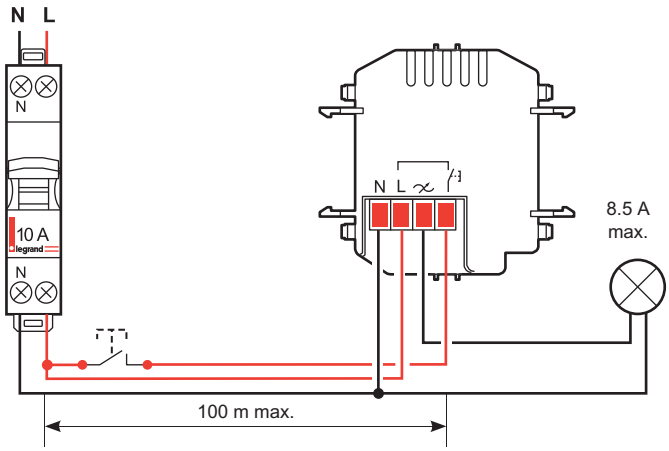
LIGHTING MANAGEMENT SENSORS (CONTINUED)

Sensors for corridors

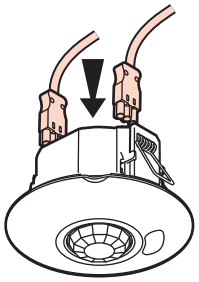
- **Sensor 0 488 07**

Infrared sensor
For fixing in suspended ceiling, IP41
360° detection, 8 m diameter
Installed every 6 m



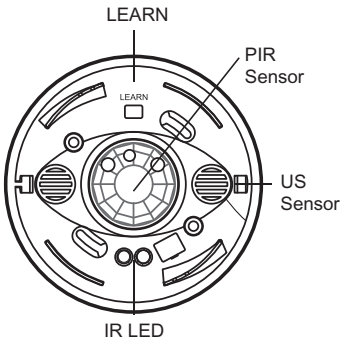


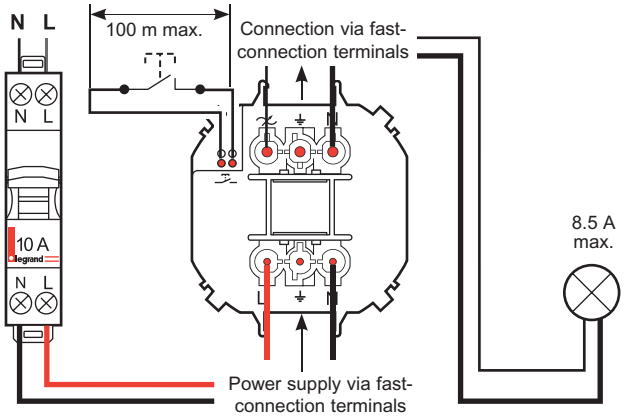
- **Sensor 0 488 08**



Infrared sensor
For fixing in suspended ceiling, IP41
360° detection, 8 m diameter
Installed every 6 m

Fast connection



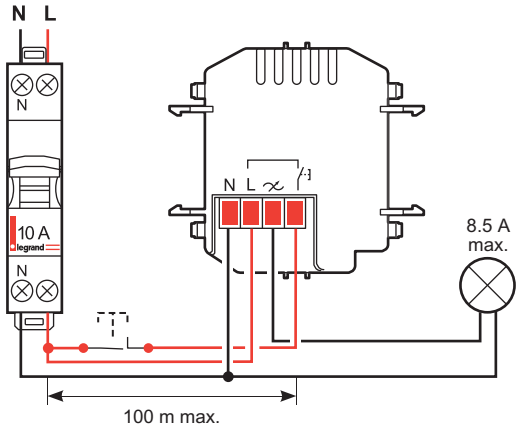


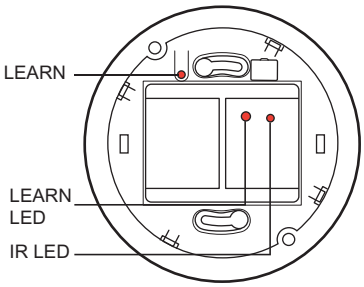
LIGHTING MANAGEMENT SENSORS (CONTINUED)

Sensors for corridors (continued)

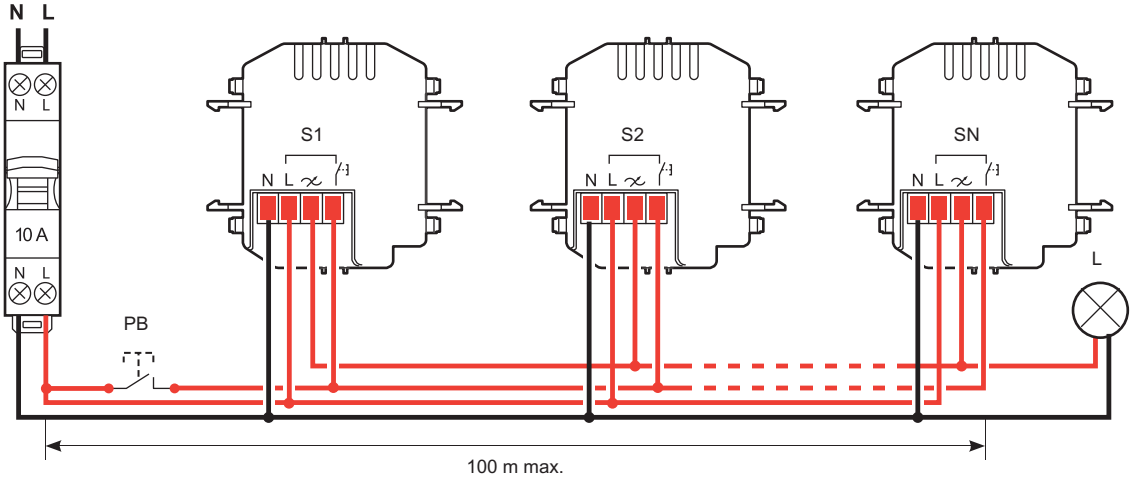
- **Sensor 0 488 17**

Infrared sensor
For fixing in suspended ceiling, IP20
360° detection, 2 x 12 m diameter
Installed every 20 m





Wiring with several sensors



LIGHTING MANAGEMENT SENSORS (CONTINUED)

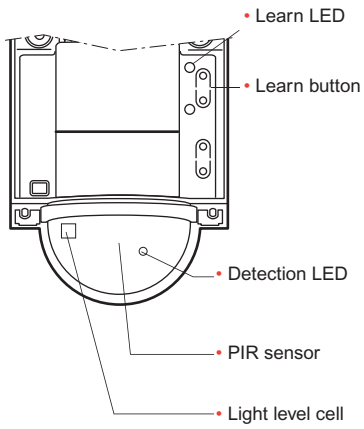
Sensors for corridors (continued)

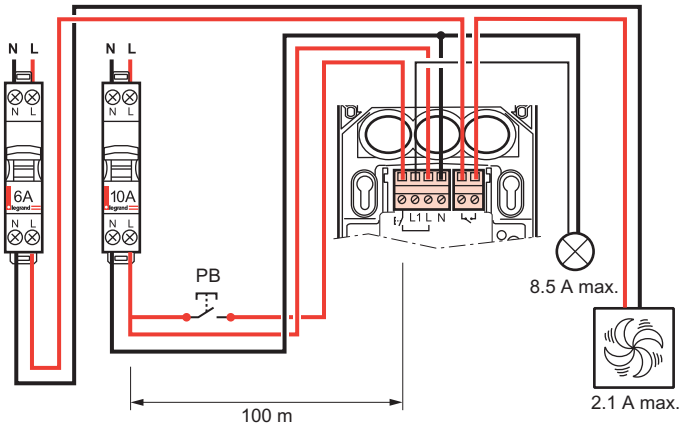
- **Sensor 0 489 17**

Infrared sensor
Surface mounting on walls, IP42
180° detection, 6 m x 15 m zone
Equipped with a "presence" output for controlling ventilation

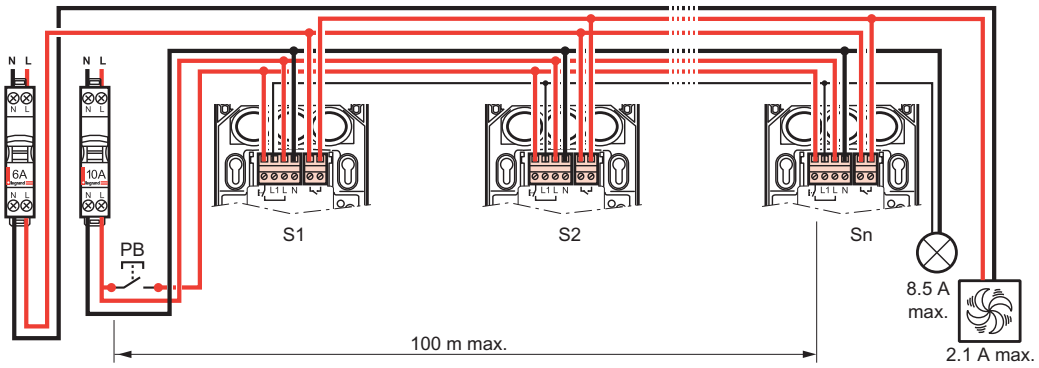
- **Sensor 0 489 14**

Infrared sensor
Surface mounting on walls, IP42 ,
180° detection, 6 m x 12 m zone
Equipped with a "presence" output for controlling ventilation





Wiring with several sensors

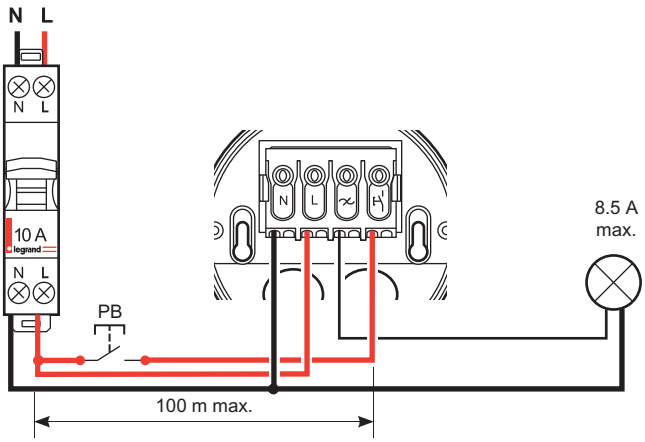


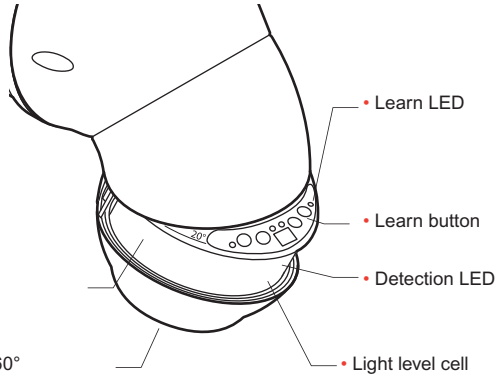
LIGHTING MANAGEMENT SENSORS (CONTINUED)

Sensors for car parks, outdoor areas and cellars

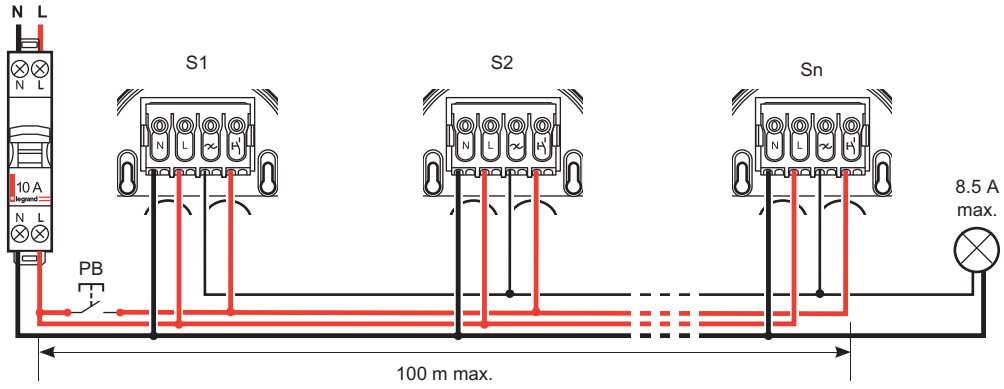
- **Sensor 0 489 33**

Infrared sensor
Surface mounting on ceiling or walls, IP55
360° detection, detection at 20 m





Wiring with several sensors

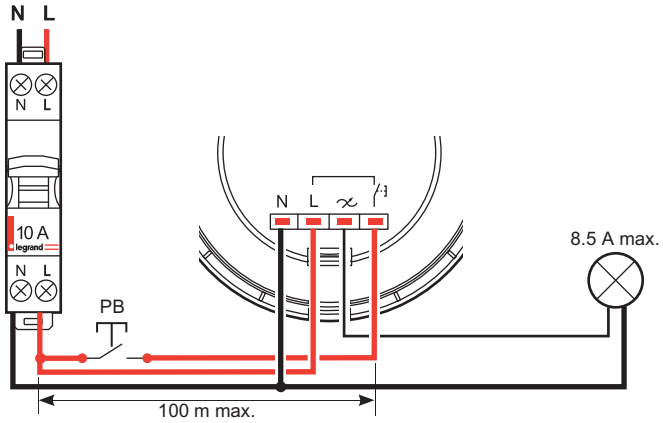


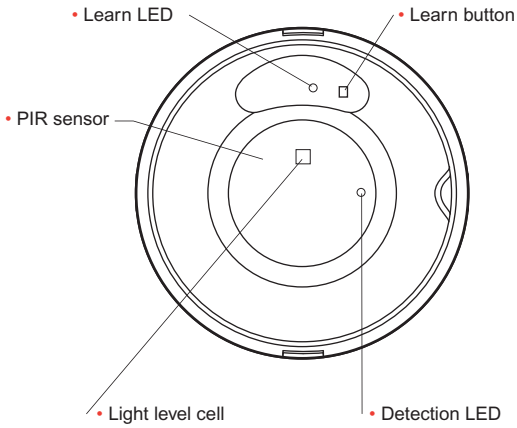
LIGHTING MANAGEMENT SENSORS (CONTINUED)

Sensor for high ceiling areas

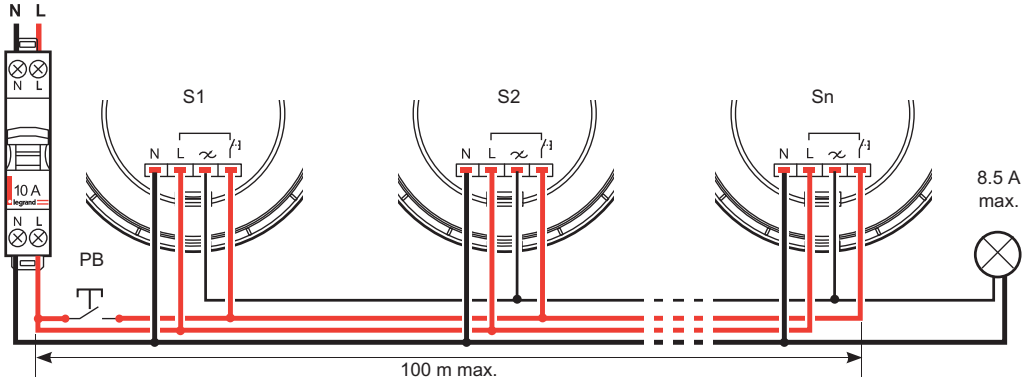
- **Sensor 0 489 32**

Infrared sensor
Surface or flush mounting on ceiling, IP55
360° detection
Installation at 2 m 50: 8 m diameter
Installation at 10 m: 25 m diameter





Wiring with several sensors

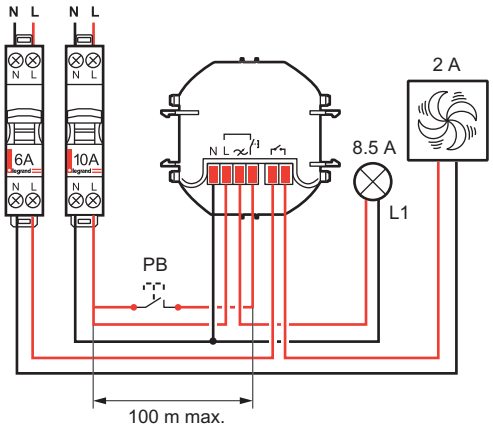


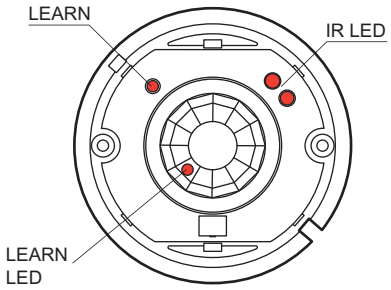
LIGHTING MANAGEMENT SENSORS (CONTINUED)

Sensors for small storage areas and toilets

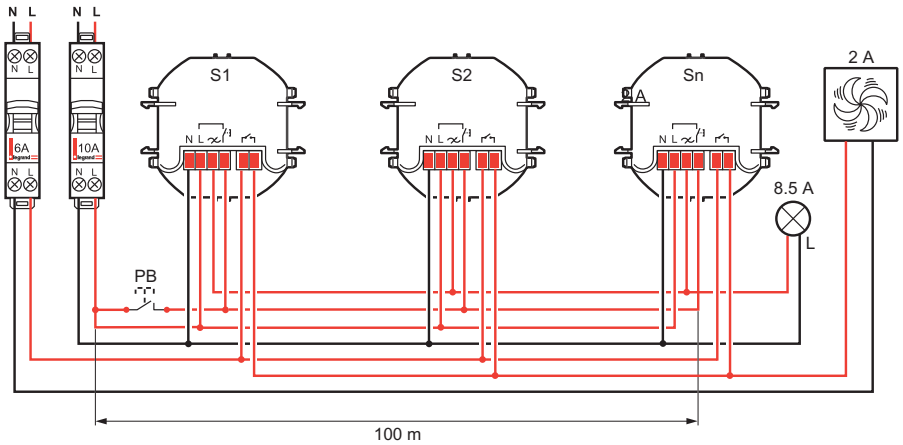
- **Sensor 0 488 04**

Infrared sensor
For fixing in suspended ceiling, IP41
360° detection, 8 m diameter
Equipped with a "presence" output for controlling ventilation





Wiring with several sensors

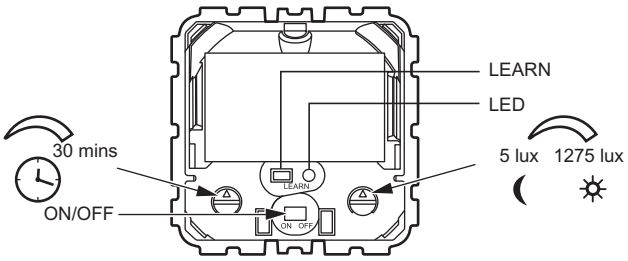


LIGHTING MANAGEMENT SENSORS (CONTINUED)

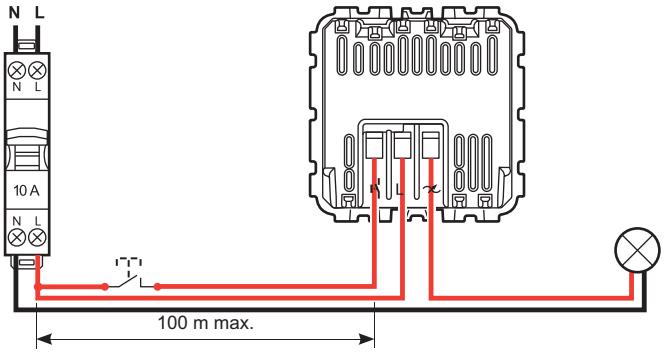
Sensors for small storage areas and toilets (continued)

• **Sensor 0 784 53**

Infrared sensor without neutral
Flush mounting on walls on a Mosaic frame, IP41
180° detection, 6 m x 8 m zone



No parallel connection possible



SENSOR RESET

To return to the default values, the sensor needs to be reset:

- 1: Short press on the sensor Learn button
- 2: Long press (10 s) on the sensor Learn button

ERGONOMY OF PUSHBUTTON WHEN CONTROLLING SEVERAL SENSORS WITH A SINGLE PUSHBUTTON

The products are synchronised in two stages:
- one long press (> 1 s) - all the sensors (S) change to ON
- one short press (< 400 ms - equivalent to a pulse) all the sensors (S) switch to the OFF state

See detailed explanations on p. 40-41

ANALOGUE CONTROLLERS (0 488 50/51/52)

These are available in ON/OFF and DALI/DSI or 1-10 V dimming versions.
Controlled by a sensor, they manage 2 outputs and comply with the standard for public buildings.
They can therefore manage 2 different circuits (corridor side/window side) in one room. A local control (pushbutton or remote control) can be added to them.

Analogue controllers enable compliance with the standard for public buildings.

Positive safety

The controllers have a positive safety feature: if there is a communication fault between the sensors and the controllers (sensors not operational or missing) the controller switches on all these loads automatically after a maximum of 10 minutes.

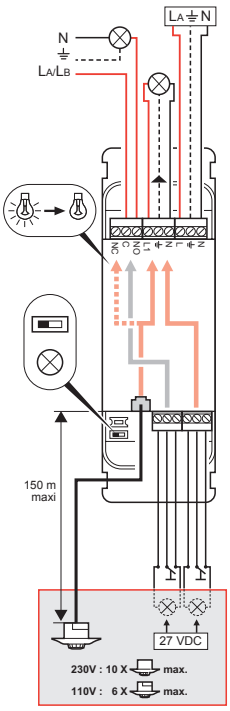
• 0 488 50 – Controller with 2 ON/OFF OUTPUTS

0 488 50 is a controller which, depending on the mode, will control 2 lines of ON/OFF luminaires or 1 line of 1 ON/OFF luminaire + 1 ventilation output.
It has 3 operating modes:

- Mode 1: 1 main line of ON/OFF luminaires + 1 secondary line of ON/OFF luminaires
- Mode 2: 2 synchronised lines of ON/OFF luminaires (public buildings version)
- Mode 3: 1 line of ON/OFF luminaires + 1 ventilation output

The distance between the controller and the furthest sensor is limited to 150 m.

Mode 1 operation



In mode 1, the left-hand pushbutton controls the left-hand lighting circuit (main output) and the right-hand pushbutton controls the right-hand lighting circuit (secondary output).

The sensor controls switching on the main lighting circuit and switching off both channels at the end of the time delay.

The lighting is regulated automatically if there is a large amount of additional external light, and the main lighting circuit will be switched off if the amount of additional light is very large. If the additional external light falls below the set light level threshold, the main lighting will switch back on.

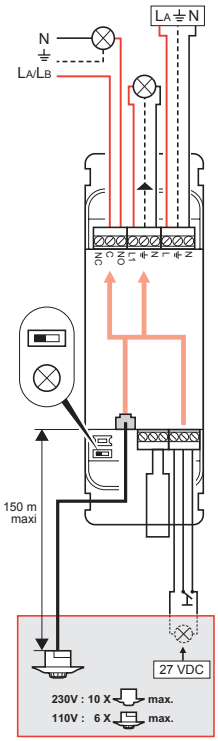
The secondary lighting circuit will remain on while the occupant is present.

The selector switch must be in the "light" position.

ANALOGUE CONTROLLERS (0 488 50/51/52) (CONTINUED)

• 0 488 50 – Controller with 2 ON/OFF OUTPUTS (continued)

Mode 2 operation



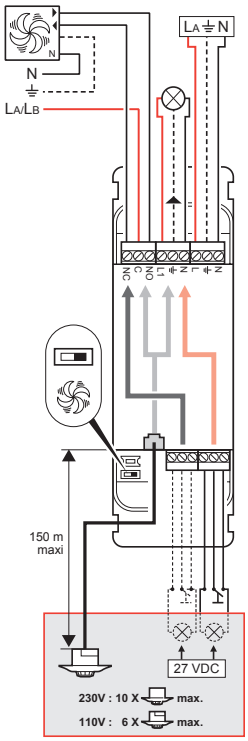
In mode 2, the pushbutton controls both lighting circuits via the shunt installed on the control terminals, as shown in the above diagram.

The sensor controls the switching on of both lighting circuits and their switching off at the end of the time delay.

The lighting is regulated automatically if there is a large amount of additional external light and both lighting circuits are switched off if the amount of additional light is very large. If the additional external light falls below the set light level threshold, both lighting circuits will switch back on.

The selector switch must be in the "light" position.

Mode 3 operation



In mode 3, the left-hand pushbutton (optional) controls the ventilation and the right-hand pushbutton controls the lighting circuit.

The sensor controls switching on the lighting circuit and switches the ventilation to comfort mode. It can also be used to switch off the lighting circuit and to switch the ventilation to eco mode at the end of the time delay.

The lighting is regulated automatically if there is a large amount of additional external light and the lighting circuit will be switched off if the amount of additional light is very large. If the additional external light falls below the set light level threshold, the lighting will switch back on.

Regulation of the lighting has no impact on operation of the ventilation.

The selector switch must be in the "Ventilation" position.

The controller can be used to control the state of the ventilation (switch between eco/comfort mode)

Several sensors can be installed (up to 10 sensors). The RJ45-BUS/SCS connector 0 488 72 or the RJ45 double connector 0 488 68 can be used to connect all the sensors.

ANALOGUE CONTROLLERS (0 488 50/51/52) (CONTINUED)

• 0 488 51 – Controller with 2 DALI OUTPUTS + 1 ventilation OUTPUT

Controller 0 488 51 can be used to control one or more DALI/DSI ballasts on two separate channels. It has one relay output for controlling the power of the DALI/DSI ballasts, and a second relay output is used to connect a ventilation system activated by presence information from the sensors.

As soon as a channel is switched on the relay is closed. Both channels must have been switched off for 5 minutes for the relay to open. This system can save more energy than on other systems, as the power supply of each ballast is switched off while they are on standby. Bistable relays are used, thus providing additional savings. To protect the relays and optimise their service life, the controller has a system for closing the relay contacts that is synchronised with the switch to zero current.

The controller can control either DALI or DSI ballasts, but not a mixture of the two. It automatically detects the type of ballast to be controlled each time it is switched on.

The controller's ventilation output is always associated with the presence information on the sensors. On detection of presence, the ventilation switches to comfort mode, and at the end of the time delay the ventilation switches to eco mode. The ventilation output can be used to activate a socket unit or any other system via a contactor, or for emergency lighting which will switch on when presence is detected.

The controller has a status memory so that when the mains power returns, it will return to the state it was in before the failure for both DALI channels. The state of the ventilation relay is not memorised as all that is needed to trigger it is detection. If the controller has a sensor and there is no-one present after the mains power returns, the system will switch off at the end of the time delay.

Two mechanical pushbuttons can be connected for separate manual control of the two DALI/DSI channels.

If there is only one pushbutton, it must be connected to channel 1 only. This pushbutton will provide ON/OFF control of both channels but will only dim channel 1 (stopping synchronisation between the two outputs).

A short press on the channel 1 pushbutton will restart automatic mode, and synchronisation of both channels.

The two outputs, PB1 and PB2, must not be wired on a single pushbutton

Controller 0 488 51 has 5 operating modes and 1 optional ventilation output

- Mode 1: 2 DALI/DSI outputs with a 30% offset + 1 ventilation output
- Mode 2: 2 DALI/DSI outputs with a 50% offset + 1 ventilation output
- Mode 3: 2 DALI/DSI outputs with an 80% offset + 1 ventilation output
- Mode 4: 2 DALI/DSI outputs with no offset (public buildings version) + 1 ventilation output
- Mode 5: 2 DALI/DSI outputs with a 2/3 offset + 1 ventilation output

Modes 1, 2, 3 and 4 comply with public building regulations when channels 1 and 2 are supplied by two circuits with different protections

ANALOGUE CONTROLLERS (0 488 50/51/52) (CONTINUED)

• 0 488 51 – Controller with 2 DALI OUTPUTS + 1 ventilation OUTPUT (continued)

Operation in modes 1, 2, 3, 5

In modes 1, 2, 3 and 5, output 2 copies output 1 with an offset.

In modes 1, 2, 3, output 2 will only switch off when presence is no longer detected (channel 2 in mode 1: min. value 30%
channel 2 in mode 2: min. value 50%
channel 2 in mode 3: min. value 80%)

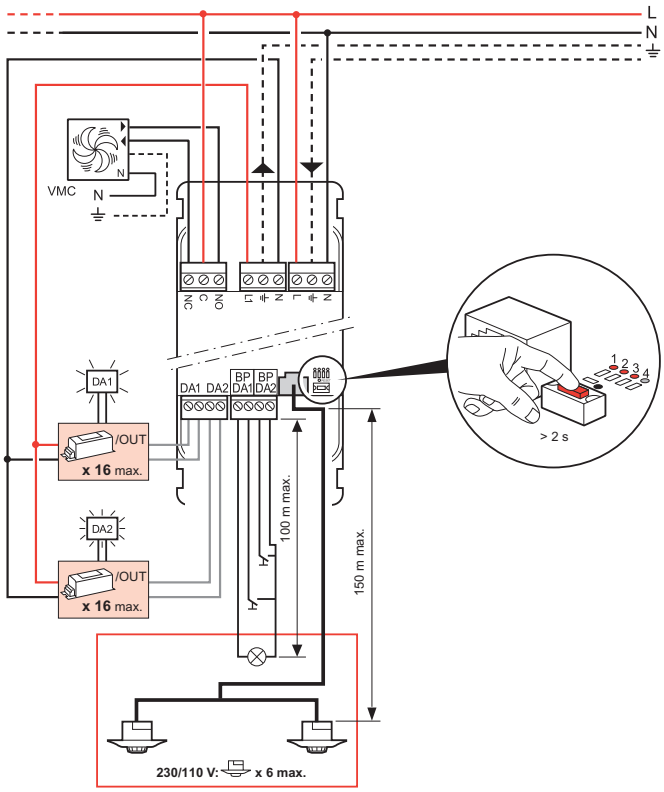
In mode 5, output 2 will switch off when presence is no longer detected or when the light level is adequate

Meaning of the LEDs:

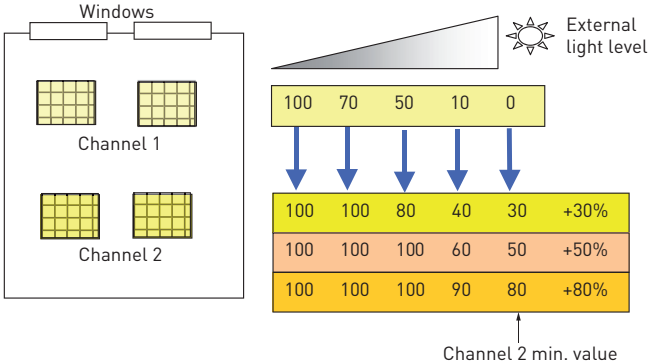
Modes 1, 2, 3 are used to manage a window side and a corridor side, by offsetting the light level between the two sides. Mode 5 is used to maintain lighting in the areas surrounding the work area.

Mode	LED number	Operating mode
1	**1** 2 3 4	Corridor side = window side +30%
2	**1** **2** 3 4	Corridor side = window side +50%
3	**1** **2** **3** 4	Corridor side = window side +80%
4	1 **2** 3 4	Public buildings
5	1 2 **3** 4	Surrounding area (2/3)

The lighting output can control the power of the ballasts for both channels.



The role of the controller in these 3 modes is to give a different light level between the window side and the corridor side. A difference of +30%, +50% and +80% can be chosen for the corridor side. Example of an office:



ANALOGUE CONTROLLERS (0 488 50/51/52) (CONTINUED)

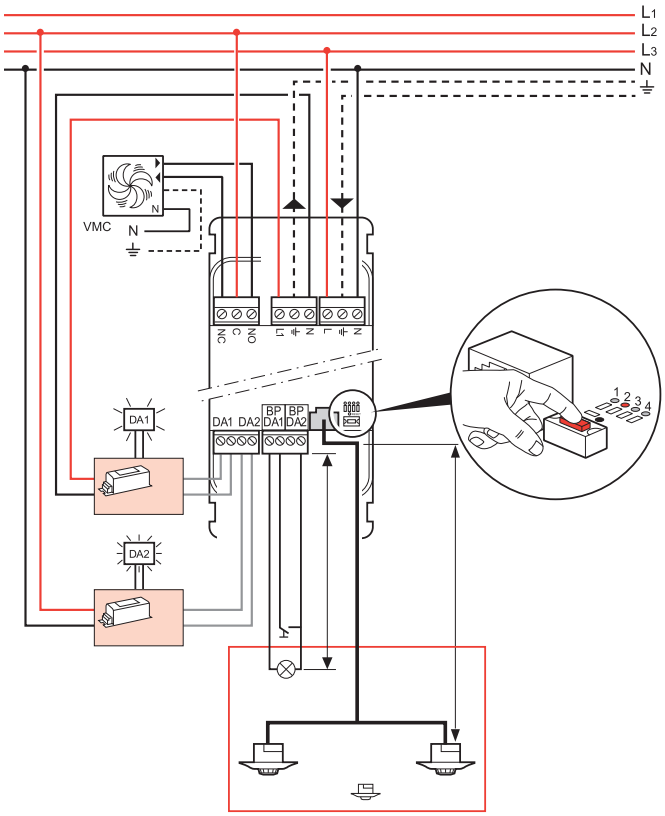
• 0 488 51 – Controller with 2 DALI OUTPUTS + 1 ventilation OUTPUT (continued)

It is possible to override automatic mode linking the two channels by using the pushbuttons. The resulting behaviour is given in the following table:

Channel status	Automatic mode status	Press on pushbutton	Channel no.	Behaviour
OFF	ON or OFF	Short press	1	Both sides switched on and activation of automatic mode. The regulation system is activated
ON	ON	Short press	1	Both channels switched off and deactivation of automatic mode. The regulation system is deactivated
ON	OFF	Short press	1	Channel 1 switched off The regulation system is deactivated
OFF/ON	ON or OFF	Pressed and held down	1	Dimming of channel 1 and deactivation of automatic mode. The regulation system is deactivated
OFF	ON or OFF	Short press	2	Channel 2 switched on and deactivation of automatic mode
ON	ON or OFF	Short press	2	Channel 2 switched off and deactivation of automatic mode
OFF/ON	ON or OFF	Pressed and held down	2	Dimming of channel 2 and deactivation of automatic mode

In these 4 modes, there must be two pushbuttons to control each channel.

Mode 4 operation (public buildings)



Mode 4 is optimised for public buildings.

The two channels constantly follow each other, which enables the luminaires to be placed in staggered rows with protection for the various ballasts on each channel.

If the controller fails, the level of the DALI ballasts will be maintained and if the BUS is disconnected, each ballast will switch to protection mode and will switch on its load at 100%. In addition, if one phase is cut, the room will not be in darkness.

Manual lighting controls can be placed in a room that is not accessible to the public. They can have an indicator (Cat. No. 0 676 67) to indicate the state of the load.

In this operating mode, the relay controlling the ballast power must only be associated with a single channel.

ANALOGUE CONTROLLERS (0 488 50/51/52) (CONTINUED)

Mode 4 operation (public buildings) (continued)

The two DALI/DSI channels cannot be separated by the auxiliary inputs. It is possible to override automatic mode linking the two channels by using the pushbuttons. The resulting behaviour is given in the following table:

Channel status	Press on pushbutton	Channel no.	Behaviour
OFF	Short press	1 or 2	Both channels switched on The regulation system is activated
ON	Short press	1 or 2	Both channels switched off The regulation system is deactivated
OFF/ON	Pressed and held down	1 or 2	Both channels dimmed The regulation system is deactivated

Several sensors can be installed (up to 6 sensors). The RJ45-BUS/SCS connector 0 488 72 or the RJ45 double connector 0 488 68 can be used to connect all the sensors.

The distance between the controller and the furthest sensor is limited to 150 m.

Using the auxiliary inputs:

Type of press	Behaviour
Short press (< 400 ms)	If the load is on: The load switches off If the load is off: The load switches on
Long press (> 400 ms)	The brightness of the load increases or decreases. Each time it is pressed the dimming type is reversed. If the load is off, the first dimming type is increasing brightness.

An IR remote control (Cat. No. 0 882 31) can be used to control both channels. When the remote control is in factory mode, unit 1 controls channel 1, unit 2 controls channel 2.

Configuring the controller:

Each time the mains power is switched on, the controller carries out a Plug and Go procedure, i.e. it scans the sensors on the SCS BUS and then configures them if they are not configured. It remains possible to reset them all, as follows:

- Short press on the controller pushbutton. The Reset LED flashes slowly.
- Long press on the pushbutton. After 10 s the Reset LED starts to flash. The controller deletes all the sensors connected to it, then reconfigures itself and the sensors.
- When the Reset LED goes off, the system is ready to operate.

The sensors are configured in walkthrough mode, with a 15-minute time delay and a light level threshold of 500 lux. These settings can, of course, be fully customised by the installer using the configuration tool 0 882 30.

ANALOGUE CONTROLLERS (0 488 50/51/52) (CONTINUED)

• 0 488 52 – Controller with 2 0-10 V OUTPUTS

Controller 0 488 52 is used to control one or more 1-10 V ballasts on two separate channels. It has one relay output per channel for controlling the power of the 0-10 V ballasts.

The controller has a status memory; when the mains power returns, it will return to the status it was in before the failure for both 1-10 V channels. If the controller has a sensor and there is no-one present after the mains power returns, the system will switch off at the end of the time delay.

Bistable relays are used, thus providing additional savings. To protect the relays and optimise their service life, the controller has a system for closing the relay contacts that is synchronised with the switch to zero current.

Two mechanical pushbuttons can be connected for separate manual control of the two 0-10 V channels.

If there is only one pushbutton, it must be connected to channel 1 only. This pushbutton will provide ON/OFF control of both channels but will only dim channel 1 (stopping synchronisation between the two outputs).

A short press on the channel 1 pushbutton will restart automatic mode, and synchronisation of both channels.

The two outputs, PB1 and PB2, must not be wired on a single pushbutton.

Controller 0 488 52 has 5 operating modes:

- Mode 1: 2 x 1-10 V outputs with a 30% offset
- Mode 2: 2 x 1-10 V outputs with a 50% offset
- Mode 3: 2 x 1-10 V outputs with an 80% offset
- Mode 4: 2 x 1-10 V outputs with no offset (public buildings version)
- Mode 5: 2 x 1-10 V outputs with 2/3 offset

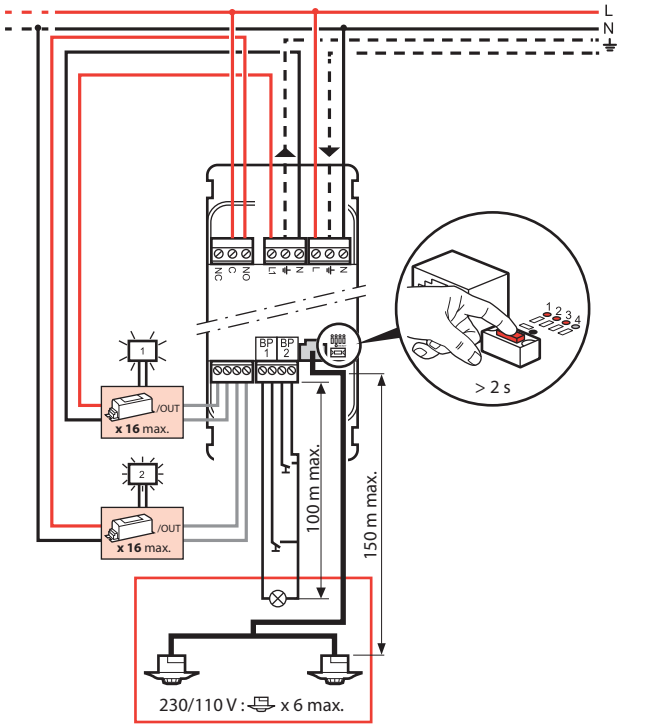
Modes 1, 2, 3 and 4 comply with public building regulations when channels 1 and 2 are supplied by two circuits with different protections.

Operation in modes 1, 2, 3, 5

In modes 1, 2, 3 and 5, output 2 copies output 1 with an offset.
In modes 1, 2, 3, output 2 will only switch off when presence is no longer detected (channel 2 in mode 1: min. value 30%
channel 2 in mode 2: min. value 50%
channel 2 in mode 3: min. value 80%)
In mode 5, output 2 will switch off when presence is no longer detected or when the light level is adequate

Meaning of the LEDs:
Modes 1, 2, 3 are used to manage a window side and a corridor side, by offsetting the light level between the two sides. Mode 5 is used to maintain lighting in the areas surrounding the work area.

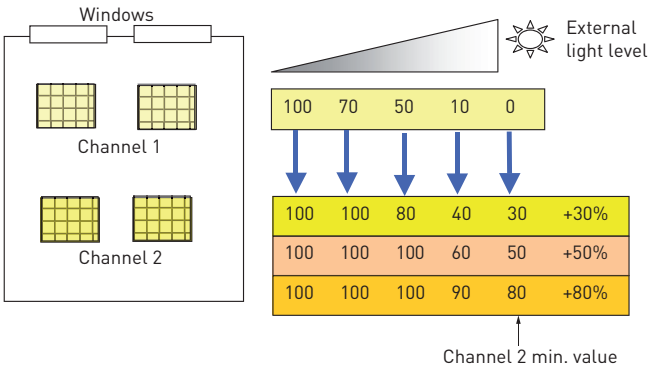
Mode	LED number				Operating mode
1	**1**	2	3	4	Corridor side = window side +30%
2	**1**	**2**	3	4	Corridor side = window side +50%
3	**1**	**2**	**3**	4	Corridor side = window side +80%
4	1	**2**	3	4	Public buildings
5	1	2	**3**	4	Surrounding area (2/3)



ANALOGUE CONTROLLERS (048850/51/52) (CONTINUED)

Operation in modes 1, 2, 3, 5 (continued)

The role of the controller in these 3 modes is to give a different light level between the window side and the corridor side. A difference of +30%, +50% and +80% can be chosen for the corridor side. Example of an office:



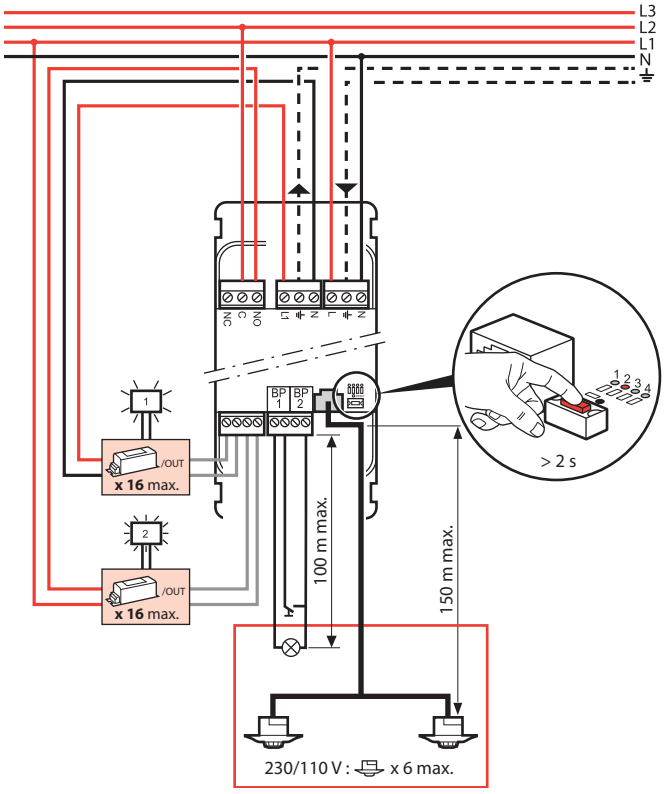
It is possible to override automatic mode linking the two channels by using the pushbuttons. The resulting behaviour is given in the following table:

Channel status	Automatic mode status	Press on pushbutton	Channel no.	Behaviour
OFF	ON or OFF	Short press	1	Both sides switched on and activation of automatic mode. The regulation system is activated
ON	ON	Short press	1	Both channels switched off and deactivation of automatic mode. The regulation system is deactivated
ON	OFF	Short press	1	Channel 1 switched off The regulation system is deactivated
OFF/ON	ON or OFF	Pressed and held down	1	Dimming of channel 1 and deactivation of automatic mode. The regulation system is deactivated
OFF	ON or OFF	Short press	2	Channel 2 switched on and deactivation of automatic mode
ON	ON or OFF	Short press	2	Channel 2 switched off and deactivation of automatic mode
OFF/ON	ON or OFF	Pressed and held down	2	Dimming of channel 2 and deactivation of automatic mode

In these 4 modes, there must be two pushbuttons to control each channel.

ANALOGUE CONTROLLERS (0 488 50/51/52) (CONTINUED)

Mode 4 operation (public buildings)



Mode 4 is optimised for public buildings.
The two channels constantly follow each other, which enables the luminaires to be placed in staggered rows with a supply phase for the various ballasts on each channel.
If the controller fails, the level of the 1-10 V ballasts will be maintained and if the BUS is disconnected, each ballast will switch to protection mode and will switch on its load at 100%. In addition, if one phase is cut, the room will not be in darkness.
Manual lighting controls can be placed in a room that is not accessible to the public. They can have an indicator (Cat. No. 0 676 67) to indicate the state of the lighting.

The two 1-10 V channels cannot be separated by the auxiliary inputs. It is possible to override automatic mode linking the two channels by using the pushbuttons. The resulting behaviour is given in the following table:

Channel status	Press on pushbutton	Channel no.	Behaviour
OFF	Short press	1 or 2	Both channels switched on The regulation system is activated
ON	Short press	1 or 2	Both channels switched off The regulation system is deactivated
OFF/ON	Pressed and held down	1 or 2	Both channels dimmed The regulation system is deactivated

Several sensors can be installed (up to 6 sensors). The RJ45-BUS/SCS connector 0 488 72 or RJ45 double connector 0 488 68 can be used to connect all the sensors.

The distance between the controller and the furthest sensor is limited to 150 m.

Using the auxiliary inputs:

Type of press	Behaviour
Short press (< 400 ms)	If the load is on: The load switches off If the load is off: The load switches on
Long press (> 400 ms)	The brightness of the load increases or decreases. Each time it is pressed the dimming type is reversed. If the load is off, the first dimming type is increasing brightness.

An IR remote control (Cat. No. 0 882 31) can be used to control both channels. When the remote control is in factory mode, unit 1 controls channel 1, unit 2 controls channel 2.

ANALOGUE CONTROLLERS (0 488 50/51/52) (CONTINUED)

Configuring the controller:

Each time the mains power is switched on, the controller carries out a Plug and Go procedure, i.e. it scans the sensors on the SCS BUS and then configures them if they are not configured.

It is still possible to reset them all, as follows:

- Short press on the controller pushbutton. The Reset LED flashes slowly.
- Long press on the pushbutton. After 10 s the Reset LED starts to flash. The controller deletes all the sensors connected to it, then reconfigures itself and the sensors.
- When the Reset LED goes off, the system is ready to operate.

The sensors are configured in walkthrough mode, with a 15-minute time delay and a light level threshold of 500 lux. These settings can, of course, be fully customised by the installer using the configuration tool 0 882 30.

SCS BUS CONTROLLERS

In the 2 or 4 I/O and multi-application versions, these provide ON-OFF and dimming (DALI/DSI, 1-10 V, LV/ELV halogen) control of circuits, as well as controlling roller blinds or ventilation, etc. In a room with a number of lighting circuits, it is advisable to have one sensor per lighting line to optimise lighting regulation. A local control can be added (BUS/SCS control or remote control) and scenes created: general switch-on/switch-off or projection scene.

Positive safety

The controllers have a positive safety feature: if there is a communication fault between the sensors and the controllers (sensors not operational or missing) the controller switches on all these loads automatically after a maximum of 10 minutes.

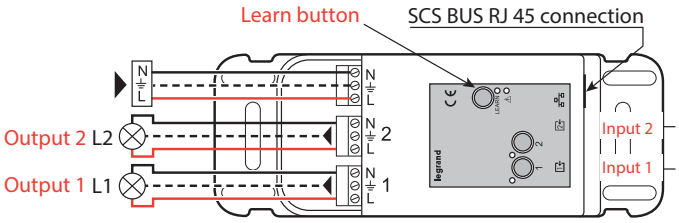
SUSPENDED CEILING CONTROLLERS

• Lighting management

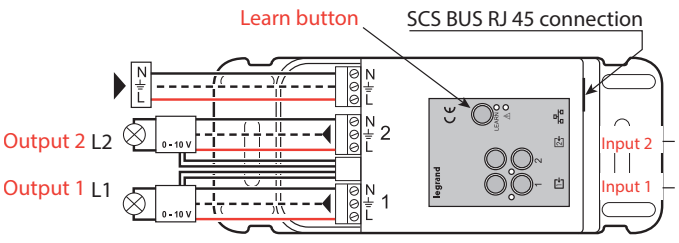
A suspended ceiling controller is a power unit or an actuator which is used to control and manage the lighting in a room. Some controllers can also control loads such as roller blinds, ventilation and green sockets.

After automatic programming (Plug&Go), control units connected to input 1 will control output 1, etc.

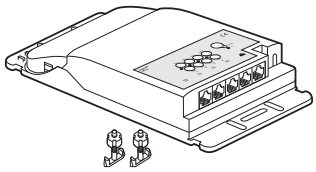
• ON/OFF controller with 2 inputs/2 outputs (Cat. No. 0 488 41)

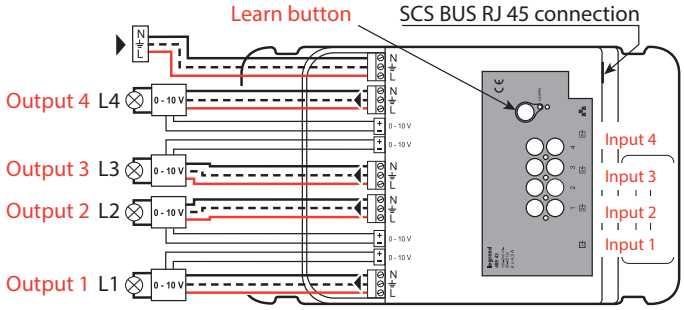


• 1-10 V controller with 2 inputs/2 outputs (Cat. No. 0 488 42)



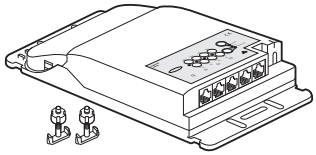
• 1-10 V controller with 4 inputs/4 outputs (Cat. No. 0 488 43)

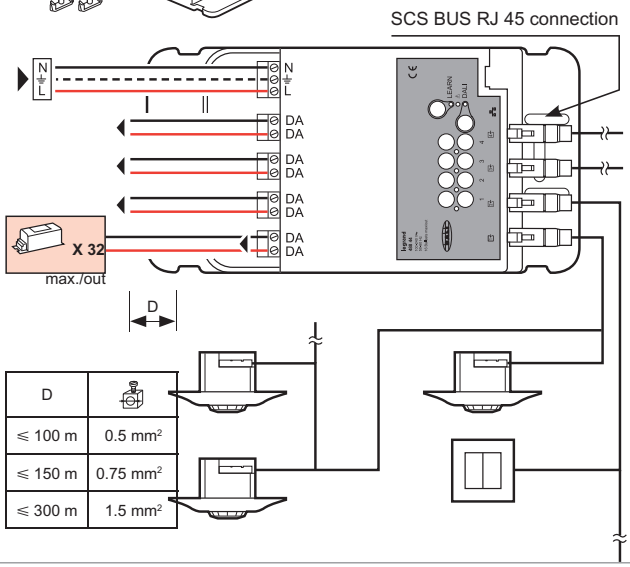




• DALI controller with 4 inputs/4 outputs (Cat. No. 0 488 44)

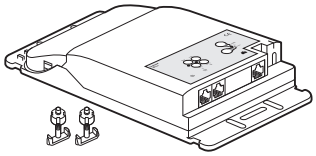
The DALI controller controls the DALI buses but not the power sent to the ballasts. This controller uses DALI broadcast mode (all luminaires connected to an output are controlled as a group; it is not possible to assign a luminaire to a different output by software programming, only by wiring)

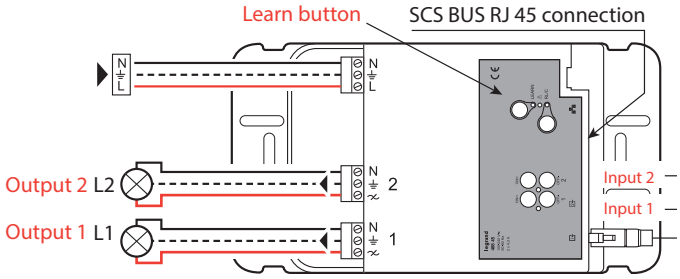




SUSPENDED CEILING CONTROLLERS (CONTINUED)

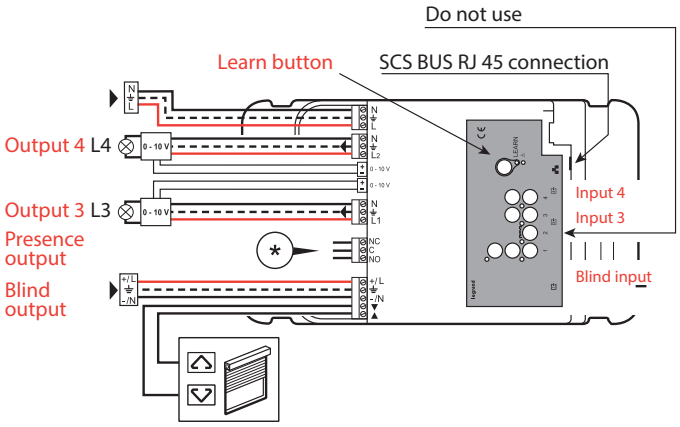
• LV/ELV halogen controller with 2 outputs (Cat. No. 0 488 45)





• Multi-application controller (Cat. No. 0 488 47)

(2 inputs/2 lighting outputs, 1 input/1 Blind output, 1 Presence) output



The Presence output is activated by sensors connected to inputs 3 and 4

The suspended ceiling controller performs the following functions:

- Supplies power to each of its peripherals
- Associates one or more loads with each peripheral during the P&G procedure

The controller has an equal amount of numbered channels and actuators.

• Managing ventilation and roller blinds

In the offer compatible with automatic configuration, ventilation and roller blinds can only be managed using the multi-application controller (0 488 47).

The ventilation (or green sockets) connected to the Presence output will be activated by detection of a presence in the room (natural light level not taken into account)

The Ventilation output will switch from ECO to COMFORT or vice versa.

The Blind output will be controlled by a manual control unit (ergonomic switches)

SCS BUS SENSORS

Sensors for work areas

- **Sensor 0 488 22**

Dual-technology sensor (infrared and ultrasonic)
For fixing in suspended ceiling, IP20
360° detection, 8 m diameter
Surface mounting on ceiling possible with box 0 488 75
This sensor can also be used in toilets fitted with cubicles that do not reach the ceiling

- **Sensor 0 784 86**

Dual-technology sensor (infrared and ultrasonic)
Flush mounting on walls on a Mosaic frame, IP41
180° detection, 6 m x 8 m zone

- **Sensor 0 488 20**

Dual-technology sensor (infrared and ultrasonic)
For fixing in suspended ceiling, IP20
360° detection, 8 m diameter
Installed every 6 m
Surface mounting possible with box 0 488 75
This sensor can also be used in toilets, changing rooms, etc.

- **Sensor 0 488 34**

Infrared sensor
Surface mounting on walls, IP55
180° detection, 6 m x 15 m zone
This sensor can also be used in car parks, outdoor areas and cellars

SCS BUS SENSOR (CONTINUED)

Sensor for small storage areas and toilets

• **Sensor 0 784 85**

Infrared sensor

Flush mounting on walls on a Mosaic frame, IP41

180° detection, 6 m x 8 m zone

SCS BUS CONTROLS

A wired control unit is used to control one or more outputs of one or more suspended ceiling controllers. It communicates with the rest of the system via the BUS/SCS.

• **Pushbutton controls**

These are used to control a lighting actuator (switch or dimmer type).

A short press (< 0.5 s) on the button switches on the actuator (at the level it was at before switch-off) and activates the regulation system. If the product is on, it switches off the actuator and deactivates the regulation system.

Pressing and holding down (> 0.5 s) the button brightens or dims the actuator and deactivates the regulation system.

An indicator displays the actuator status.

• **Switch controls**

These are used to control a lighting actuator (switch or dimmer type) or a roller blind actuator.

For lighting:

A short press (< 0.5 s) on the top button switches on the actuator (at the level it was at before switch-off) and activates the regulation system.

A short press (< 0.5 s) on the bottom button switches off the actuator and deactivates the regulation system.

Pressing and holding down (> 0.5 s) the button brightens or dims the actuator and deactivates the regulation system.

An indicator displays the actuator status.

SCS BUS CONTROL (CONTINUED)

• Switch controls (continued)

For roller blinds:

Pressing and holding the button down (> 0.5 s), raises (press up) or lowers (press down) the blind.

Pressing the button briefly (<0.5s) stops the blind raising or lowering.

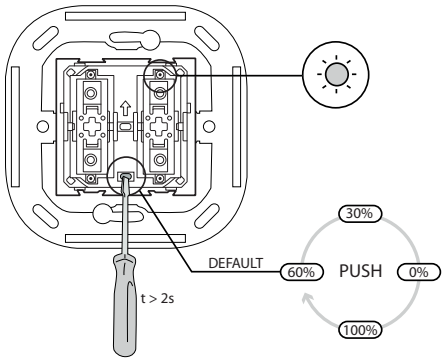
Control unit operation after a Plug&Go

- The 1st button controls the channel to which the control unit is connected.
- The 2nd button controls the channel after the one to which the control unit is connected if the channel 1 number is odd
- The 2nd button controls the channel before the one to which the control unit is connected if the channel 1 number is even.

• Setting the LED lighting level

On all the controls, each button has an LED. The lighting level of this LED can be set when the control is configured.

To do this, open the device with a very narrow tool (such as a screwdriver), press the Learn button on the control as illustrated below (press and hold down until you reach the desired brightness):



By default, the control unit lighting level is configured at 60%.

• Resetting the control unit

To return to the default values, press the Learn button on the control briefly, then press and hold down for around 10 s

ACCESSORIES

• Connectors

RJ45 – BUS/SCS connector

Used to connect suspended ceiling controllers and sensors directly on an SCS BUS cable using tap-offs (male connector)

RJ45 double connector

Used to double the number of suspended ceiling controller inputs. Ideal for connecting a number of sensors to one controller input with fast connection via an RJ45 cable

• Cable (0 492 33/73)

Zero-halogen cable for connecting SCS BUS products

Technical characteristics

- Sheath colour: white
- Outer diameter: max: 5 mm
- Number of wires: 2 flexible twisted wires (white, blue)
- Wire cross-section: 0.5 mm^2
- Electrical resistance: less than 75 Ω/km
- Operating temperature: -15° C, +70° C
- Length: 200 m

REMOTE CONTROLS

The infrared control (or remote control) is used to control the lighting system remotely via the sensor which acts as an IR/SCS Bus interface.

Infrared mobile control unit 0 882 31
The infrared remote control is a lighting control.
It is used to control a group of several actuators. It consists of three units: two ON/OFF control units and one separate action unit.

- Pressing the left-hand button briefly (< 1 s) switches on the group and activates the regulation system.
- Pressing the right-hand button briefly (< 1 s) switches off the group and deactivates the regulation system.
- Pressing and holding down the left-hand or right-hand button (> 1 s) brightens or dims the group and deactivates the regulation system.

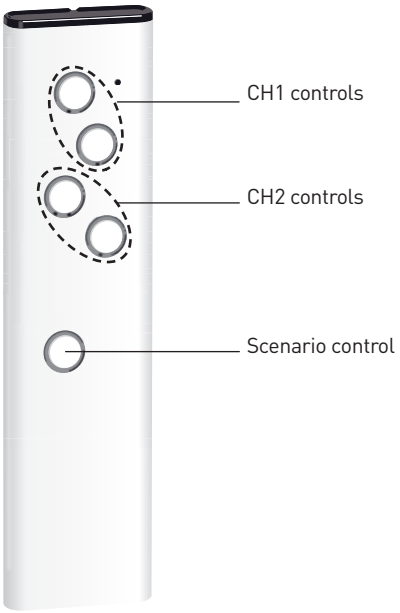
With the action button, a short press initiates the action.

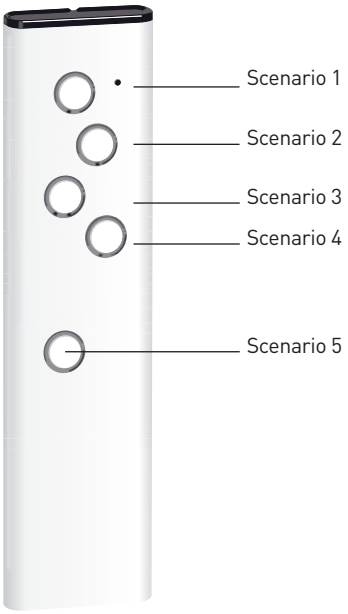
Infrared mobile scenario control unit 0 882 32
The infrared remote control is a scenario control.
It used to initiate 5 independent scenarios.

- Pressing one of the buttons briefly (< 1 s) initiates the scenario

The scenario is programmed via the Push&Learn method

Resetting the remote control
• The remote control is reset by a short press followed by a long press (> 10 s) on the Learn button on the remote control. The Learn LED then flashes very quickly.

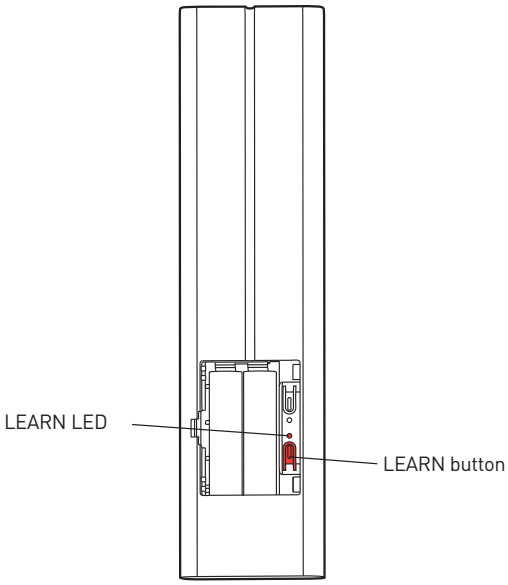




REMOTE CONTROLS (CONTINUED)

• Programming the remote control 0 882 31

The Push&Learn programming method is used.
These remote controls comprise ON/OFF channels. The aim is to program the ON button for the channel, and the OFF button will be programmed automatically.



• Use with a sensor

Push&Learn procedure:

- Press the Learn button on the remote control
- Press the action button on the remote control
- Press the Learn button on the sensor (x 2)
- Press the Learn button on the remote control

The ON and OFF buttons are both programmed.

• Use with a controller

- For units 1 and 2 (see remote control presentation), simply configure the ON button via the Push&Learn procedure, the OFF button will be configured automatically.

Creating a lighting control

Open the procedure from the remote control:

1. Short press on the Learn button on the remote control
   → The Learn LED on the remote control flashes slowly
2. Short press on the Control button on the relevant scenario unit
   → The Learn LED on the remote control flashes quickly

Add a light actuator:

1. Short press on the Learn button on the relevant scenario actuator
   → The Learn LED on the actuator flashes slowly
2. Short press on the Control button on the relevant scenario actuator
   → The Learn LED on the actuator flashes quickly and the actuator load switches on

Close the procedure:

1. Short press on the Learn button on the remote control
   → The Learn LEDs on the leader and on the participant(s) go off.

Completely deleting the lighting control

1. Short press on the Learn button on the remote control
   → The Learn LED on the remote control flashes slowly
2. Long press on the Control button on the relevant scenario unit
   → The Learn LED flashes for 5 s

The Learn button can be accessed from the battery compartment (at the back) for programming

Remote control 0 882 31 factory mode

Status of the remote control following a factory reset (Reset)

- With 1 switch sensor: CH1 will control the sensor (caution: it will also control the one in the next-door office if it is a window type; to avoid this, perform a Push'n Learn procedure between the remote control and the sensor)
- With 1 BUS sensor + self-contained controller:
  - CH1 will control the window side (output 1)
  - CH2 will control the corridor side (output 2)

REMOTE CONTROLS (CONTINUED)

• Programming the remote control 0 882 32
Same programming method, the Push&Learn method.
Each scenario should be programmed separately.

Create a scenario

1. Short press on the Learn button on the remote control
   => The Learn LED on the remote control flashes slowly
2. Short press on the programmer's scenario button
   => the LED on the remote control flashes quickly

Program the scenario

3. Short press on the Learn button on the controller
   => the LED on the controller flashes slowly
4. Press on the various controller outputs according to the scenario to be programmed
   => the LED on the controller flashes quickly

Close the procedure

5. Short press on the Learn button on the remote control => the Learn LEDS switch off on the remote control and the controller

Scenario remote control 0 882 32 factory mode

The scenario remote control 0 882 32 is supplied in ZigBee version, the first step is to change it to an infrared version.

Procedure

1. Short press on the Learn button on the remote control => the Learn LED flashes
2. Long press on the button to be programmed (until the blue LED goes off) => the blue LED lights up and then goes off
3. You have 10 s to choose the media by short presses to switch from one to the other: blue LED on = Zigbee media /blue LED off = Infrared media
4. Closure: the Learn LED starts to flash quickly then goes off after the 10 s, programming is complete

Verification

When pressing a scenario button, the blue LED should be on steady when it is held down and then go off

SENSOR OPERATION

OPERATING MODES

Automatic mode

The sensor switches on the group of lights automatically when it detects presence with an inadequate light level, and switches it off automatically after a preset time when no presence is detected.
(This operating mode does not preclude the use of manual controls to override automatic operation).

Walkthrough mode

The sensor switches on the group of lights automatically when it detects presence with an inadequate light level, and switches it off automatically after a preset time when no presence is detected.
However if the occupant is no longer detected after 20 s, the non-presence time will be reduced to 3 min (if the preset non-presence time is longer than 3 min).
This mode is most useful for areas where people pass through infrequently, as it saves an average of 5 times more energy than automatic mode.
(This operating mode does not preclude the use of manual controls to override automatic operation).

Manual ON/auto OFF MODE

The user has to switch on the lights manually, and the sensor switches them off automatically if the user has forgotten to do so when leaving. In this mode the light level cell has no effect on switching on of the lights, but regulation is nevertheless activated.
This mode saves more energy than automatic mode (15%) but it does not take account of the person's visual comfort.
This mode is recommended for work areas in which there is daylight.

All Legrand sensors have a motion sensor and a light level cell.
There are several switch-on modes.

BEHAVIOUR OF THE SENSOR AND CONTROLLER

AUTOMATIC ON - AUTOMATIC OFF MODE

 **1 person enters**	There is enough light	• No effect	• No effect
	The light level is inadequate	• Activates the loads immediately • Switches on regulation	• Immediately activates the loads at the level prior to switch-off (if the previous level is too low, the loads are activated at 70% of their maximum power) • Switches on regulation
 **1 person remains**	The sensor regulates, the room gets darker	• If the light is off, activates the loads immediately • If the light is on, no effect	• If the light is off, activates the loads immediately at the previous level • If the light is on, immediately increases the lighting power
	The sensor regulates, the room gets lighter	• If the light level is above the threshold, the loads switch off after 10 min • If the light level is below the threshold, no effect	• The power is reduced to the chosen level (the reduction is gradual = 1% per min) (if there is a considerable difference in light level, this can take more than ½ an hour)
	The light is on, short press on manual control	• OFF command: all the loads are switched off immediately • ON command: switches on regulation	• OFF command: all the loads are switched off immediately • ON command: switches on regulation
	The light is on, long press on manual control	• Switches off regulation • No effect on the loads	• Switches off regulation • Increases or decreases the lighting power immediately
	The light is off, short press on manual control	• OFF command: switches off regulation • ON command: switches on regulation with immediate switch-on of lighting	• OFF command: switches off regulation • ON command: switches on regulation and switches on the loads at the previous level
	The light is off, long press on manual control	• Switches off regulation • Switches on the loads	• Switches off regulation • Switches on the loads and manages dimming with more or less lighting power
 **The person leaves**		• Switches off the loads and switches off regulation after the set time delay	• Switches off the loads and switches off regulation after the set time delay
 **Mains failure**		• The controllers memorise their status	• The controllers memorise their status
 **Power return**		• The controllers return to the status they were in before the mains failure • Regulation remains off • The time delay starts • If no presence is detected = switch-off after time delay	• The controllers return to the status they were in before the mains failure • Regulation is switched off • The time delay starts • If no presence is detected = switch-off after time delay

MANUAL ON - AUTOMATIC OFF MODE

 **1 person enters**	There is enough light	• No effect	• No effect
	The light level is inadequate	• No effect until the manual control is pressed	• No effect until the manual control is pressed
 **1 person remains**	The sensor regulates, the room gets darker	• If the light is off, activates the loads immediately • If the light is on, no effect	• If the light is off, activates the loads immediately at the previous level • If the light is on, immediately increases the lighting power
	The sensor regulates, the room gets lighter	• If the light level is above the threshold, the loads switch off after 10 min • If the light level is below the threshold, no effect	• the power is reduced to the chosen level (the reduction is gradual = 1% per min) (if there is a considerable difference in light level, this can take ½ an hour)
	The sensor does not regulate, the room gets darker	• No effect	• No effect
	The sensor does not regulate, the room gets lighter	• No effect	• No effect
	The light is on, short press on manual control	• OFF command: all the loads are switched off immediately • ON command: switches on regulation	• OFF command: all the loads are switched off immediately • ON command: switches on regulation
	The light is on, long press on manual control	• Switches off regulation • No effect on the loads	• Switches off regulation • Increases or decreases the lighting power immediately
	The light is off, short press on manual control	• OFF command: switches off regulation • ON command: switches on regulation with immediate switch-on of lighting	• OFF command: switches off regulation • ON command: switches on regulation with the loads switched on at the previous level
	The light is off, long press on manual control	• Switches off regulation • Switches on the loads	• Switches off regulation • Switches on the loads and manages dimming with more or less lighting power
 **The person leaves**		• Switches off the loads and switches off regulation after the set time delay	• Switches off the loads and switches off regulation after the set time delay
 **Mains failure**		• The controllers memorise their status	• The controllers memorise their status
 **Power return**		• The controllers return to the status they were in before the mains failure • Regulation remains off • The time delay starts • If no presence is detected = switch-off after time delay	• The controllers return to the status they were in before the mains failure • Regulation remains off • The time delay starts • If no presence is detected = switch-off after time delay

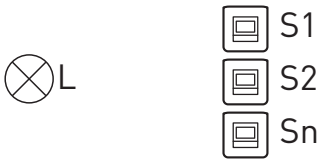
BEHAVIOUR OF SEVERAL SENSORS WITH ONE PUSHBUTTON

L1
L2
Ln

S1
S2
Sn

SEVERAL SENSORS AND LOADS

Status	Actions	Result
All the loads and sensors are off **L1 OFF** **L2 OFF** **Ln OFF** S1 OFF S2 OFF Sn OFF	Short press on pushbutton  < 1 s	**All the loads and sensors switch on**
All the loads and sensors are on **L1 ON** **L2 ON** **Ln ON** S1 ON S2 ON Sn ON	Short press on pushbutton  < 1 s	**All the loads and sensors switch off**
The load and sensor 1 are on and the other 2 (2 and n) are off **L1 ON** **L2 OFF** **Ln OFF** S1 ON S2 OFF Sn OFF	Short press on pushbutton  < 1 s	**The load and sensor 1 switch off and the other 2 (2 and n) switch on**
	Long press on pushbutton  > 1 s and short press on pushbutton  < 1 s	**All the loads and sensors switch off**
	Long press on pushbutton  > 1 s	**All the loads and sensors switch on**



SEVERAL SENSORS AND ONE LOAD

Status		Actions	Result
The load and all the sensors are off		Short press on pushbutton < 1 s	**The load and all the sensors switch on**
L OFF	S1 OFF S2 OFF Sn OFF		
The load and all the sensors are on		Short press on pushbutton < 1 s	**The load and all the sensors switch off**
L ON	S1 ON S2 ON Sn ON		
The load and sensor 1 are on and the other 2 (2 and n) are off **L ON** / S1 ON, S2 OFF, Sn OFF		Short press on pushbutton < 1 s	**Sensor 1 switches off; the load remains on and the 2 other sensors switch on (2 and n)**
		Long press on pushbutton > 1 s and short press on pushbutton < 1 s	**The load and all the sensors switch off**
		Long press on pushbutton > 1 s	**The load and all the sensors switch on**

TECHNOLOGIES
DETECTION

DEFINITIONS OF DETECTION TECHNOLOGIES

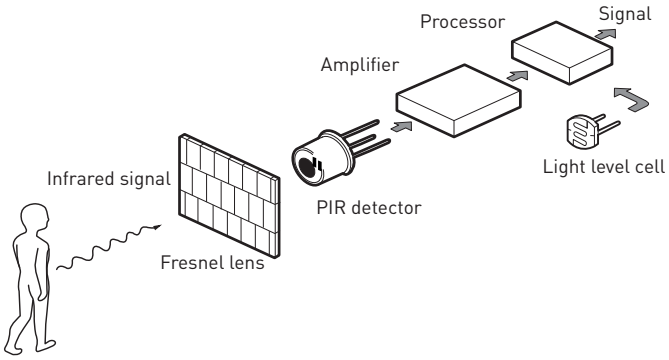
PIR: Infrared

PIR (Passive InfraRed) is a detection technology based on pyroelectric sensors, which measure variations in temperature.
The sensors react to sudden changes in thermal energy by detecting the appearance of this energy at the wavelength emitted by humans.
They must be located in direct line of sight of an occupant to detect his/her presence. A curved faceted lens defines the field of vision as a multitude of vertical and horizontal detection cones projected by the sensor.

The further away a person is from the sensor, the wider the space between the cones.
The sensitivity of the motion sensor therefore decreases as the distance increases.

The parameters read by the sensor are temperature and area. When the temperature approaches that of the human body, the sensor has difficulty carrying out detection.

The best position for the sensor is perpendicular to the trajectory of people's movements.

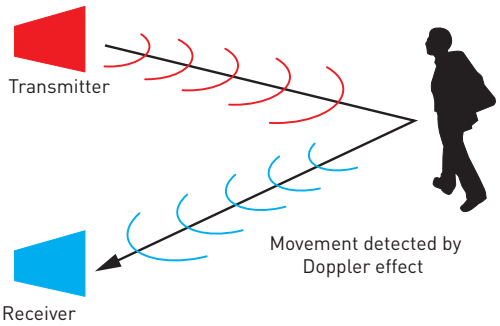


Infrared detection

DEFINITIONS OF DETECTION TECHNOLOGIES (CONTINUED)

US: Ultrasonic

These sensors emit sound waves that are undetectable to the human ear and use a quartz crystal oscillating at a frequency of 40 kHz with a power of < 110 dB at a distance of 1.5 m.
These waves are emitted within the sensor's coverage radius and bounce off objects, surfaces and people. When the waves return to the sensor, their frequency is measured. Movement is detected by a slight change in frequency (Doppler effect), triggering a presence signal.
The US sensor can "see" around objects and surfaces as long as the surfaces in an enclosed area are hard enough to enable the sound waves to bounce off them.
No emission of radio waves. Ultrasound = mechanical vibration.



Ultrasonic detection

The best position for the sensor is facing the trajectory of people's movements.

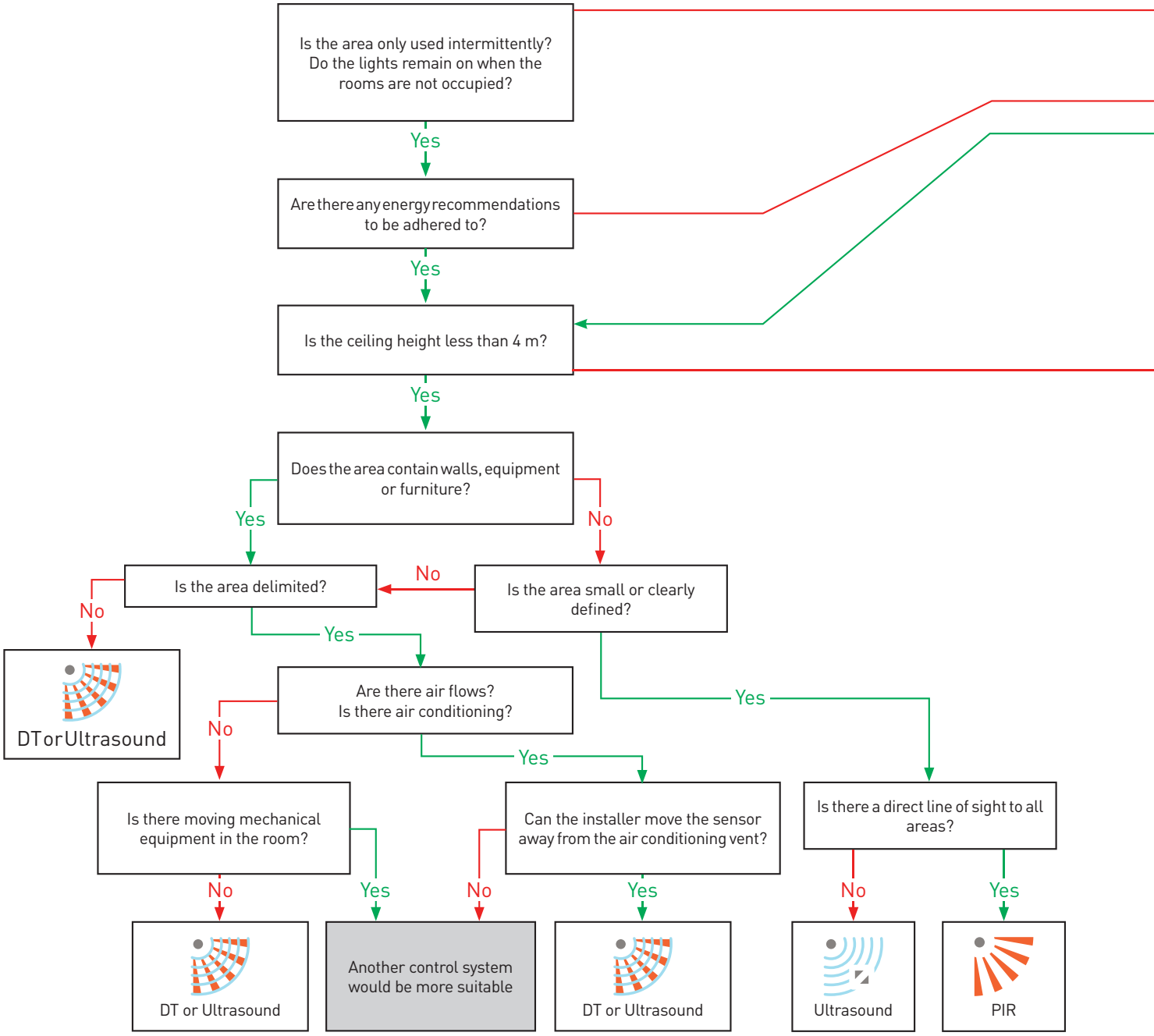
Man can hear up to 20 kHz, cats up to 25 kHz and dogs up to 35 kHz. Ultrasound has no effect on humans and animals.

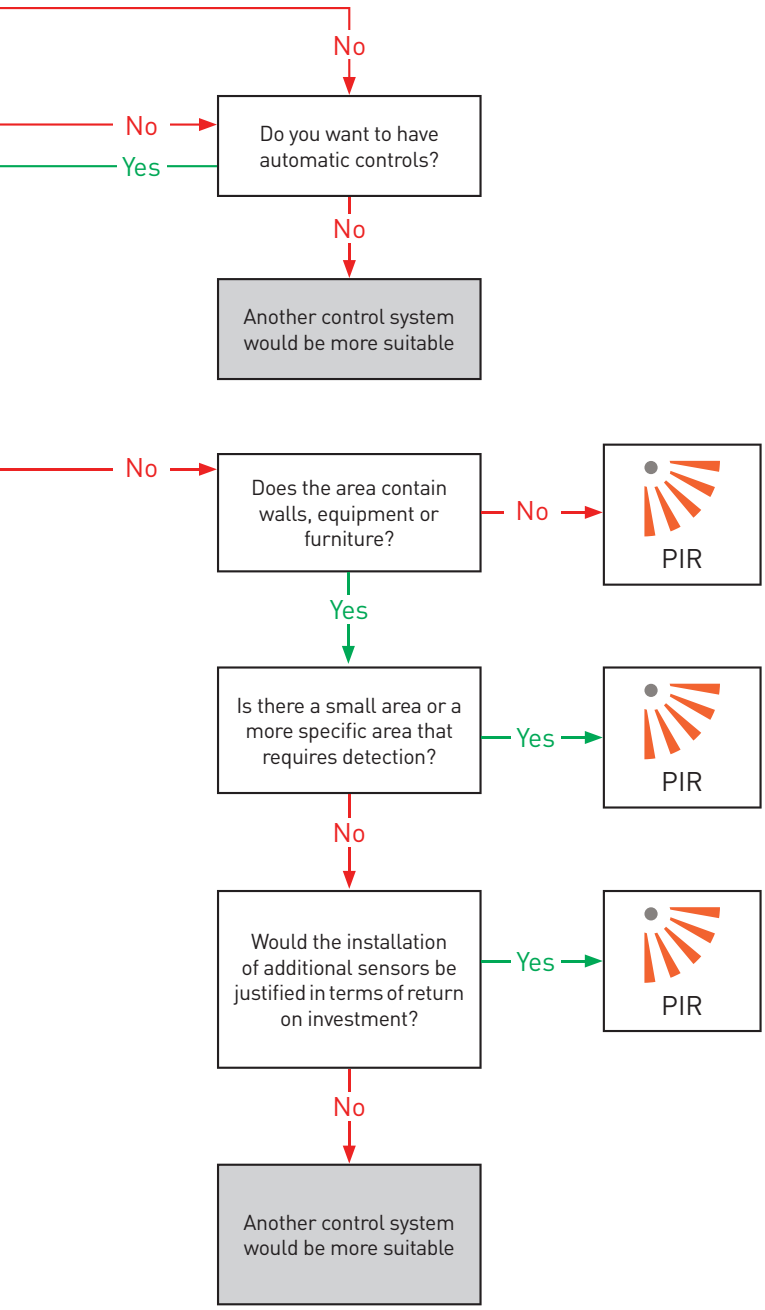
It is possible to stop using ultrasound for the sensor, but it continues to transmit even when it is deactivated.

DUAL: Dual technology (PIR + US)

Dual-technology sensors use PIR and US technologies to provide maximum reliability and coverage with minimum false detection.

SELECTING THE RIGHT DETECTION TECHNOLOGY





SUMMARY OF GOOD PRACTICE

Which sensor in which area?

- Enclosed areas that are obstructed by obstacles: **uS SENSORS**.
- Obstacle-free open areas: **Ir SENSORS**.
- Areas where there is little movement: **dual-technology sensors**.

Do

- Position the sensors above or close to the main areas of activity in an area
- Inform occupants about the new devices and how to use them
- Crossdetectionzonesforimproveddetectionandreducedsensitivity without decreasing detection capability
- Maintain a minimum distance of 4 m between two sensors

Don't

Incorrect choice of sensor for these areas:

- **US sensors:**
  - In areas where the ceiling is more than 4 m high
  - US sensors in places subject to interference from vibration
- **IR sensors:**
  - In areas in which objects, furniture or walls break the signal
  - In areas where the occupants move around very little

Incorrect choice of sensor for these areas:

- Install US sensors facing one another
- Install IR sensors in places where the temperature of the ambient air is similar to that of the human body
- Install sensors less than 2 metres from an air conditioning outlet or a pulsed heating outlet

Incorrect use:

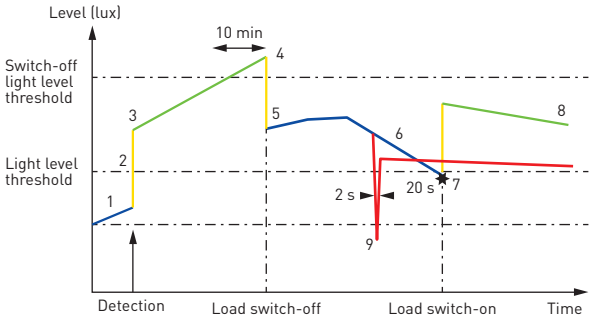
- Control safety lighting and emergency exits with sensors

LIGHTING REGULATION

OPERATING PRINCIPLE

Lighting regulation is only possible in areas that have natural light (window).
These sensors (lighting management, BUS/SCS) measure the light level continuously. This is done by means of a light level cell integrated in the sensor.
The lighting will therefore be switched on/off or dimmed continuously according to the light level and whether or not people are present. This function is called lighting regulation.

The regulation algorithms, executed by the sensors, inform the sensors of the artificial and natural light levels, so that the artificial light level can be adjusted to exactly what is required.



Key:
- Natural light
- Artificial light
- Sudden drop in light level (for example: a blind is closed)
- Natural + artificial light
- No light

REGULATION

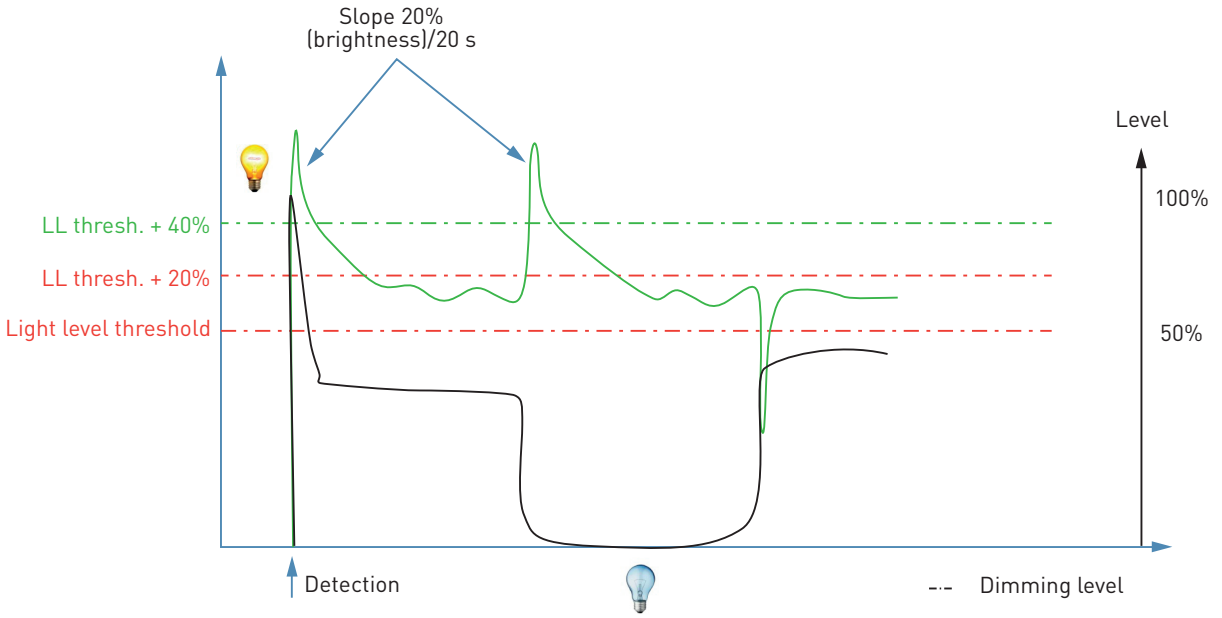
The light level cell in the sensor constantly measures an area's light level (made up of natural and artificial light). The cell in the sensor will switch on/off or dim its associated loads according to variations in the natural light.

1. Regulation by switching on/off:

To give the switch-off command, the cell must measure a natural light level (and distinguish it from the artificial light provided). If this light provided is above the set light level threshold, the loads will be switched off. The switch-off light level threshold must be exceeded for 10 minutes for the cell to give the switch-off command. This avoids unwanted switching off which could cause inconvenience for occupants.
If there is a sudden or gradual change in the natural light level, the cell will immediately reactivate the switch-on command.

Explanation of the diagram opposite:

- 1: The light is off.
- 2: A person enters the room and is detected. If the available natural light is below the threshold, the sensor switches on the load.
- 3: The load is on.
- 4: After comparison between the natural and artificial lighting by the light level cell and a period of 10 minutes during which the light intensity of the load is above the switch-off light level threshold, the system switches off the load.
- 5: The load is off.
- 6: The light intensity decreases to the minimum programmed light level threshold.
- 7: If the light intensity of the load falls below the programmed light level threshold for 20 seconds, the sensor switches on the load.
- 8: Regulation is in progress. This ensures that the user has an adequate lighting level in his/her office, as the system adapts the artificial light intensity according to the natural light by switching it ON/OFF.
- 9: If there is a sudden drop in light level (for example: following closing of blinds), the light switches on immediately.



2. Regulation by dimming:

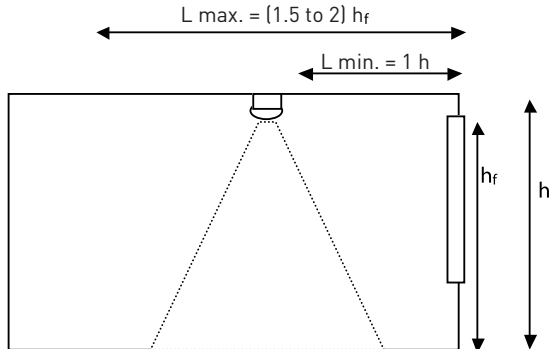
This type of regulation enables the light level of the room to be constantly varied and adjusted. An algorithm for a rapid increase in the light level has been chosen so that the occupant always has enough light and a rapid decrease when there is significantly more light than the light level threshold (light level threshold + 40%) to help promote energy savings, then a slow decrease when the light level is close to the threshold to help ensure comfort and avoid users being disturbed by unwanted switching on and off.
The time taken to decrease from 100% to 1% can vary from a few minutes to 30 minutes.

For regulation to be effective, it is important to have a lighting power level close to the light level threshold value.

Calculation of the switch-off light level threshold = Light level threshold value x 1.5 + Artificial light provided.
Result to be compared to the value given by the luxmeter to check that the loads switch off.

- **The daylight must be distributed as evenly as possible, and it is preferable not to use partitions that are perpendicular to the window.**
- **The light level measurement area should be approximately 4 m in diameter and 2.5 m high. This does not preclude regulation being carried out in an area smaller than 12 m² if it is enclosed.**
- **The distance between 2 sensors must be at least 3 m to prevent "hunting" problems and avoid being influenced by neighbouring luminaires. If they are less than 3 m apart, change to open loop regulation.**
- **For optimum operation of the regulation function and maximum energy efficiency, the luminaires must provide sufficient power. The recommended light level is defined by standard EN12464-1 (lighting of workplaces).**

Positioning the sensor for correct closed loop measurement of the light level



To obtain a satisfactory result with the regulation function, it is advisable to have at least one opening (window) to the outside.
It is recommended that the light level cell is placed on the ceiling at a distance of between 1 times the height of the room and a maximum 1.5 to 2 times the height at the top of the window.
For a ceiling height of 2.8 m and a maximum window height of 2.5 m, the sensor can be placed 2.8 m to 5 m from the window.
Above this limit, regulation of the light according to the natural light entering the room will be less effective as there will be less light.

SPECIAL FUNCTIONS

These functions are not available on all sensors: refer to the technical data sheets.

SENSOR IN DETECTION-ONLY MODE

Setting the sensor to detection-only mode means that the sensor does not take the natural light level into account, even when the first detection occurs.
The sensor will operate by detecting presence.

- **Setting a BUSsensor:**
  the parameter must be set via Virtual Configurator (for more information, see the SCS system guide).
- **Setting a self-contained sensor:**
  set the light level threshold to its maximum value (1275 lux).

These functions are not available on all sensors: refer to the technical data sheets.

AUXILIARY OUTPUT

This function is available on certain sensors and controllers. This output controls a volt-free contact, which is closed when presence is detected (natural light level not taken into account). This function is particularly suitable for ventilation (switch from ECO mode to COMFORT mode).

The auxiliary output time delay is identical to the main output time delay.

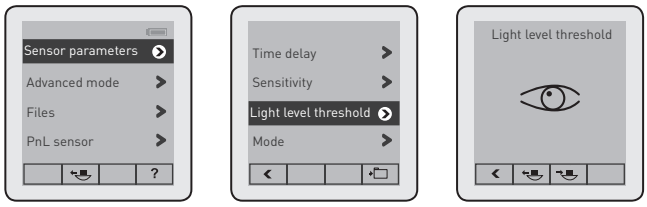
EYE

The EYE function enables the installer to set the light level threshold to the ambient light level.

To activate the EYE function:

Go to **Sensor parameters\Light level threshold**, send the EYE value (when the value of the light level threshold is 0, an icon appears on the screen).

The load must be off



The threshold will take the value read by the sensor's light level cell at the moment the command is sent.

Switch off the artificial lighting to ensure that the ambient light level is perceived correctly.

PULSE FUNCTION

This function enables a pushbutton in an installation with a timer (staircase, corridor type) to be replaced by a sensor.

- In refurbishment projects, use a 2-wire sensor 0 784 57; the sensor time delay must be at least the same as that of the timer
- In new projects, use a 3-wire sensor

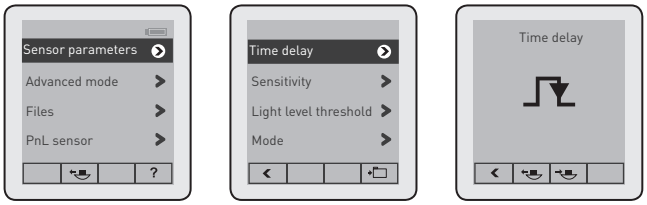
To activate the PULSE function:

Go to **Sensor parameters\Time delay**, send the PULSE value (when the value of the time delay is 0, an icon icon appears on the screen), then set the time delay on the timer.

The maximum time delay for the timer is 10'

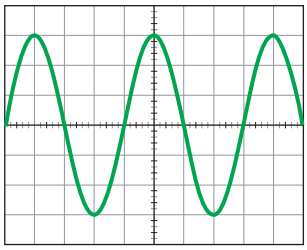
Operation:

The sensor sends a pulse every 10 s as long as a person is detected



ZERO CURRENT BREAKING

In order to limit the incidence of currents on the cut-off relays, induced by fluorescent loads in particular, all Legrand sensors and controllers break at zero current.
Description: the AC input and output signal is a sine wave. The input and output are supplied by the same phase and are consequently synchronised.
The sensor observes the sine wave of the input signal. As soon as it receives a switch-off command to be carried out, it waits for the sine wave of the input signal to change to zero and breaks the current to the load.



Value 0

PROGRAMMING

ANALOGUE CONTROLLERS

• ON/OFF controller – 0 488 50

This controller has 3 operating modes (see Product presentation and installation/Analogue controller section)

- Wire up the sensors in accordance with the desired mode
- Position the selector switch as recommended in the mode
  - Mode 1 and 2: selector switch in the light position
  - Mode 3: selector switch in the ventilation position
- Switch on the controller, then wait until the LED on the controller and sensors goes off
- Using configuration tool 0 882 30, set the sensor parameters

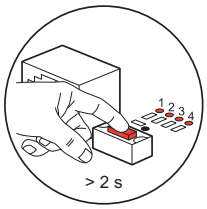
Caution: if there are several sensors, choose the one in the darkest corner, activate regulation and deactivate regulation on the other sensors => this sensor will then measure the light level for all the sensors.

• Dimming controllers – 0 488 51 and 0 488 52

This controller has 5 operating modes (see Product presentation and installation/Analogue controller section)

- Wire up the sensors in accordance with the desired mode
- Switch on the controller, then wait until the LED on the controller and sensors goes off
- Choose the desired operating mode

A long press (> 400 ms) on the pushbutton is used to scroll through the operating modes. The modes are indicated using 3 LEDs, marked 1 to 3.



When the button has been pressed for 2 s, the LEDs start to flash, indicating that the controller is switching to a parameter-setting mode. Then a different mode is offered every 4 s. On reaching a suitable option, simply release the pushbutton. When the LEDs stop flashing, the new mode has been selected.

- Using configuration tool 0 882 30, set the sensor parameters

Caution: if there are several sensors, choose the one in the darkest corner, activate regulation and deactivate regulation on the other sensors => this sensor will then measure the light level for all the sensors.

SCS BUS CONTROLLER

The suspended ceiling controllers have two programming modes which do not need a configuration tool. These two modes are called:

- Plug&Go – automatic programming mode
- Push&Learn – programming mode for customising the installation

Plug&Go

Plug&Go is automatic programming which is performed according to the wiring

Procedure

Connect all the products (control units to the controller inputs)

The controller automatically recognises all its peripherals and performs its own Plug and Go procedure (once complete, the LEDs on each controller and each peripheral stop flashing).

The manual controls and sensors connected to input 1 will control output 1, the manual controls and sensors connected to input 2 will control output 2, etc.

After a short automatic initialisation/configuration period, the system is operational immediately.

Sensor behaviour after Plug&Go

After a Plug&Go procedure, the sensor will control the output to which it is connected.

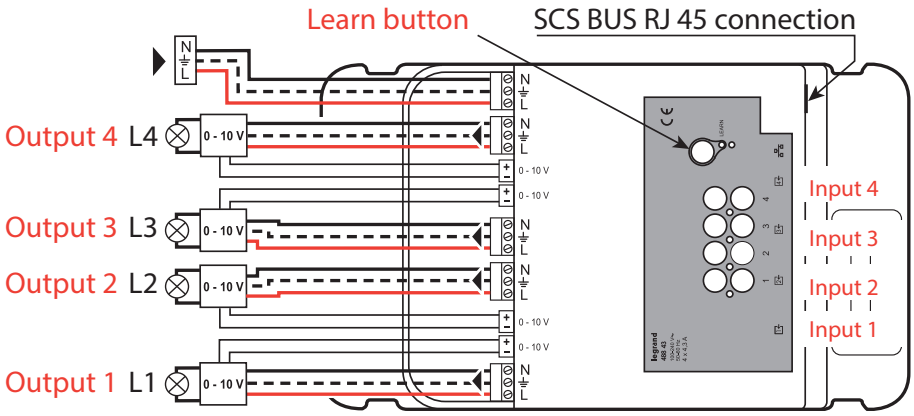
The links created in P&G cannot be deleted via P&L. Only completely deleting the peripheral can get rid of these links (Sensor reset).

The controller peripherals are identified by the system on each output, which produces the configuration below.

Sensor only: configuration in walkthrough mode

Sensor + point-to-point control unit: configuration in Manual ON/Auto OFF mode

Sensor + group control unit: configuration in Manual ON/Auto OFF mode

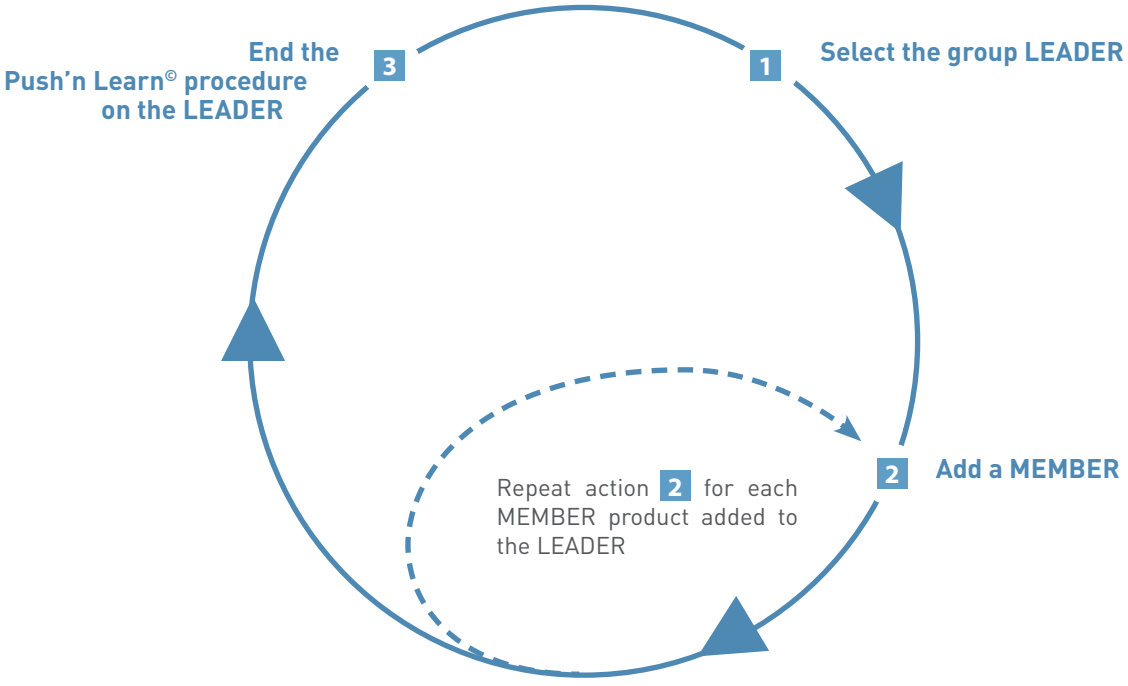


PUSH&LEARN

Push&Learn is manual programming, so that after a Plug&Go procedure the installation can be customised by adding a general control or area control, by grouping several separate spaces into one or by adding a remote control.

Start the PUSH&LEARN customisation procedure:

Principle of Push&Learn configuration
A suspended ceiling controller is never the "leader" of a group



- **LEADER = TRANSMITTER (control unit or sensor)**
Product which sends a command to one or more product(s)
The learn procedure is launched and enabled from this product

- **MEMBER = RECEIVER (suspended ceiling controller)**
Product which executes the command sent by the LEADER

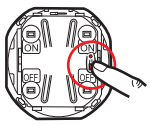
Procedure time ⩽ 10 min.
If > 10 min, restart the procedure.

PUSH&LEARN (CONTINUED)

■ **Modification of a functional link**

The control unit (manual control or sensor) is associated with 1 controller output and you want to add another output

■ Press the LEARN button on the control or the sensor
→ The LEARN LED flashes slowly

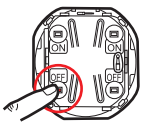


LEARN button


LEARN button

• **1: Product with control button**
■ Press the control button
→ The LEARN LED flashes quickly

1



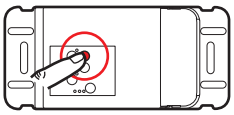
Control button

• **2: Sensors**
■ Press the LEARN button a second time
→ The LEARN LED flashes quickly

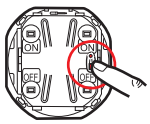
2


LEARN button

■ Press the ON button on the controller output you wish to add


ON button

■ Press the LEARN button on the control
→ All the LEDs stop flashing



LEARN button


LEARN button

PUSH&LEARN (CONTINUED)

■ **Modification of a functional link (continued)**

The control unit (manual control or sensor) is associated with 2 controller outputs, one of which you want to delete

• **First delete both outputs**

■ Press the LEARN button on the control or the sensor
→ The LEARN LED flashes slowly

1 - Product with control button

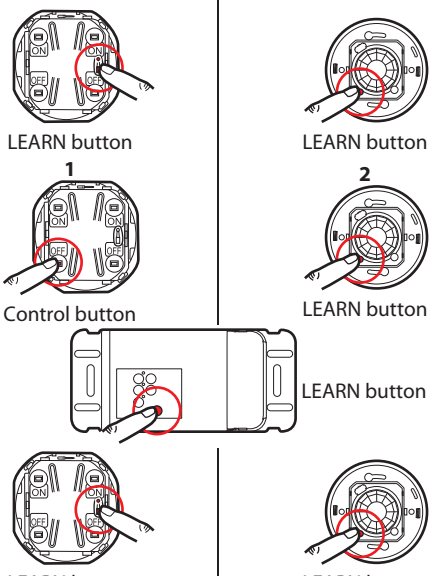
■ Press the control button
→ The LEARN LED flashes quickly

2 - Sensors

■ Press the LEARN
→ The LEARN LED flashes quickly

■ Press the LEARN button on the controller
→ The LEARN LED on the controller stops flashing (both outputs have been deleted)

■ Press the LEARN button on the control
→ All the LEDs stop flashing



• **Then add the output you wish to retain**

■ Press the LEARN button on the control or the sensor
→ The LEARN LED flashes slowly

1 - Product with control button

■ Press the control button
→ The LEARN LED flashes quickly

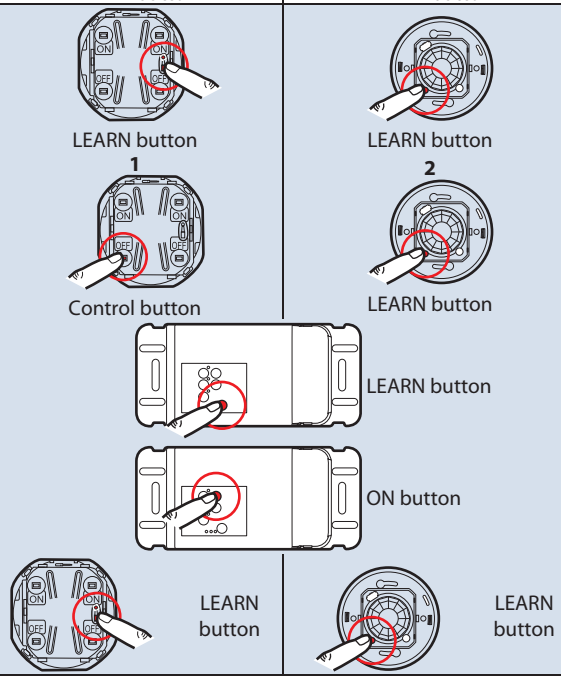
2 - Sensors

■ Press the LEARN
→ The LEARN LED flashes quickly

■ Press the LEARN button on the controller
→ The LEARN LED flashes quickly

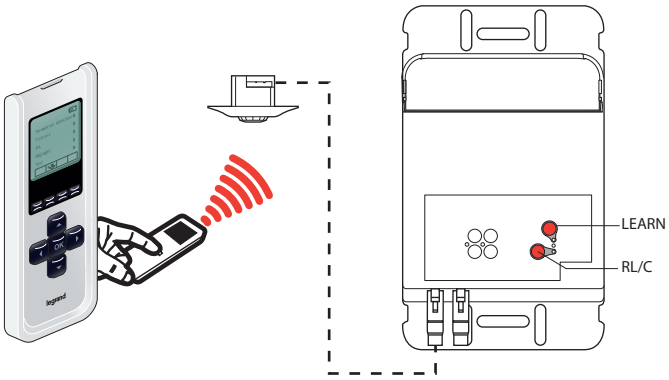
■ Press the ON button on the controller output you wish to retain
→ The LEARN LED flashes quickly

■ Press the LEARN button on the control
→ All the LEDs stop flashing



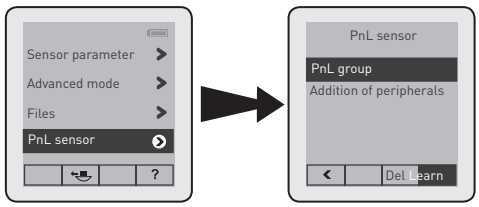
REMOTE PUSH&LEARN

This procedure can be used to create a group between a sensor and the suspended ceiling controller units. The mobile configurator (0 882 30) must be used to perform this operation.



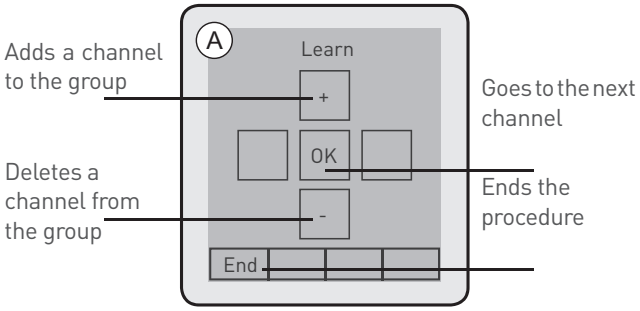
Opening the procedure:

In the "PnL sensor" screen, press Learn towards the sensor. A new screen appears.



The learn LED on the sensor flashes quickly. Suspended ceiling controllers already in the group switch on the connected loads.

Selecting a suspended ceiling controller output:



Press the OK button in the configurator window

→ The suspended ceiling controller suggests an output by switching it on (if it does not belong to the group) or switching it off and then on again (if it belongs to the group).

Press the OK button in the configurator window

→ The suspended ceiling controller switches off the previous output (not belonging to the group) then suggests another one as described earlier.

When the controller has gone through all the outputs, it starts again.

Adding or deleting a suspended ceiling controller output:

Once the output has been chosen, press the "+" button for 2 s to add it to the group or "-" to remove it

→ The controller acknowledges the selection by switching on and off again.

Closing the procedure:

Using the configurator, press the "end" button => The sensor LED goes off.

COMMISSIONING WITH SENSOR CONFIGURATION TOOL

Check the wiring → Interrogate the sensor → Set the sensor → Check operation

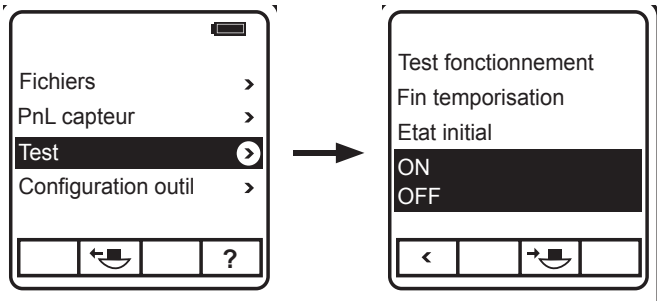
REMINDER OF THE INSTALLATION RULES

Before a sensor is set, it must be wired in accordance with the wiring instructions supplied with the sensor.
ForBUSsensors,thesystemconfigurationmusthavebeencompleted (Plug & Go).
This procedure is applicable to BUS and self-contained sensors.
A configuration tool (0 882 30) is required for setting the sensors.
Tool 0 882 35 can be used to set the basic parameters: time delay, operating mode, sensitivity and light level threshold.
But it cannot be used for troubleshooting the sensor if there is a problem.

To obtain more information on operation of the configuration tool 0 882 30, see the technical data sheet on www.legrandoc.com.

CHECKING THE WIRING

To check the wiring, switch on the installation: the sensor should switch on its load for approximately 30 seconds depending on the type (BUS, self-contained): this step is called the warm-up.

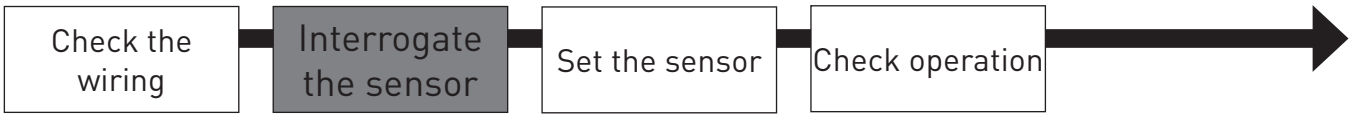


Using the configuration tool 0 882 30, go to the **test** menu, then control the load using the **ON** and **OFF** functions.

If there is a local control (pushbutton, infrared remote control, etc.), use it and check control of the load.

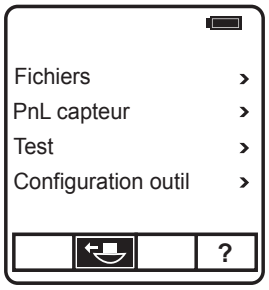
If the loads do not respond, check with the installer to locate the wiring error.

COMMISSIONING WITH CONFIGURATION TOOL FOR SENSORS



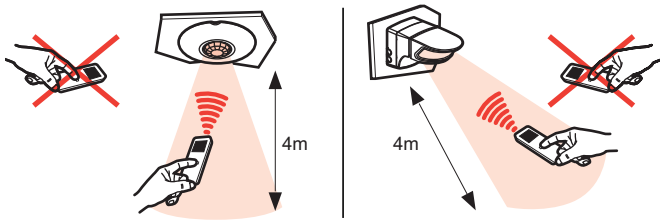
INTERROGATING THE DETECTOR

After validating the wiring, the sensor must be interrogated.



In the main menu, click on the icon at the bottom of the window, using the buttons at the bottom of the screen 

It is necessary to comply with the positioning instructions so that the tool can communicate with the sensor.



To have good communication between the 0 882 30 tool and the sensor, it is sometimes necessary to switch off the light first, as fluorescent lights can disturb or event prevent communication.

As tool Cat. No. 0 882 30 is common to several product ranges, when all the parameters are read, those which are not used in the product being interrogated are filtered out. Only the menus and commands which are compatible with that product will be visible in the tool.
Listofparameters(whenreadingasensorinanoffice-048822–dual-technology BUS sensor).

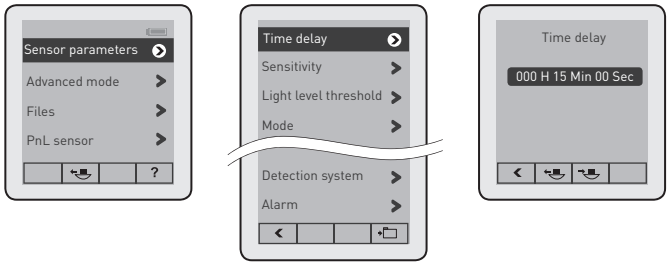
0 h 15 min 0 sec	Time delay
PIR very high	IR sensitivity
US high	US sensitivity
300 lux	Light level threshold
Walkthrough mode	Operating mode
Initial > IR and US	Initial detection system
Maintain > IR or US	Maintain detection system
Restart > deactivated	Restart detection system
Deactivate	Alarm
Activate	Regulation
Auto	Additional light
Closed loop	Automatic control
Digital PIR+US	Type of sensor
0x00055F16	ID no.
1.17	Firmware version
7	Address A = 0, Pl = 7
7	Group no.

SETTING THE SENSOR

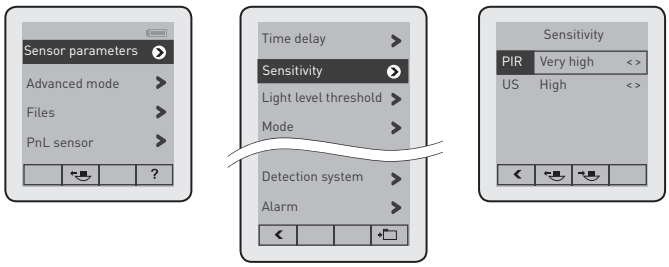
Sensors are set in two steps: the detection function and the regulation function.

1. Setting the parameters connected with detection

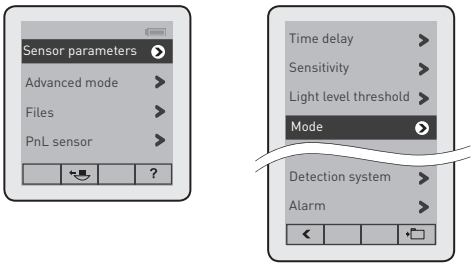
- **Time delay**: time the lighting remains on after the last detection.
  In a commercial building, it is advisable to set long time delays (between 10 and 15 min) to avoid premature wear of the fluorescent tubes and unwanted switching off (in particular when working at a desk and only making small movements, or possibly not moving at all, for example when reading documents).

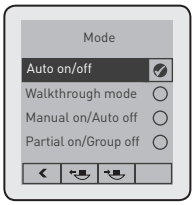


- **Sensitivity**: for each technology (IR and US), the sensitivity setting decreases or increases the detection area.
  It also reduces the disturbing effects of air currents, air conditioning and air flows from heating, etc.
  To set the sensitivity levels, it is advisable to go to Operating Test mode (p. 28).
  Go to the detection area and check that the sensor covers the strategic positions in the room
  (entrance door, desk, etc.).
  A detection LED lights up in the lens to indicate that the sensor is detecting.



- **Operating mode**: used to select the required operating mode (auto on/off; manual on/auto off; walkthrough, etc.).





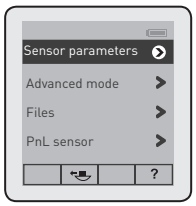
Automatic ON/OFF mode:
Automatic switch-on if light level inadequate,automaticswitch-offafter time delay or if light level adequate.

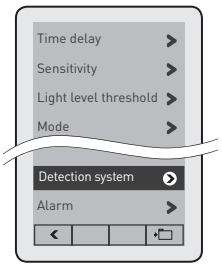
Manual ON/Auto OFF mode:
Manual switch-on using local control, automatic switch-off after time delay or if the light level is adequate.

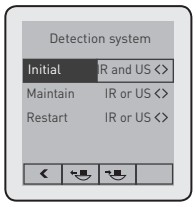
Walkthrough mode: same as automatic ON/OFF mode, except that if there is no detection after 20 s the time delay is reduced to 3 min.

SETTING THE SENSOR (CONTINUED)

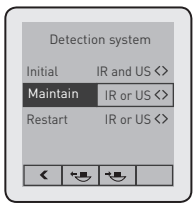
■ **Detection system** (only applicable with dual-technology sensors): used to define the detection technology used for each phase:



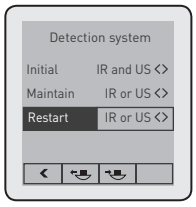




Initial = when you enter the room (by default, set IR and US)



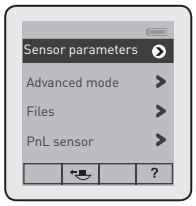
Maintain = when you remain in the room (by default, set IR or US)

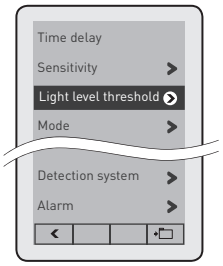


Restart = in manual ON/auto OFF mode, when you remain in a room without moving and the light switches off, switches the light back on again automatically for 30 seconds after switch-off.
By default, set IR or US (deactivate if the operating mode is not manual ON/Auto OFF).

2. Setting the parameters associated with lighting regulation

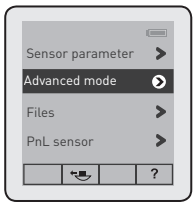
■ **Light level threshold** : minimum lighting value when presence is detected.
The light level threshold setting will depend on the type of area => standard EN 15 193 gives recommended values for each type of use (example: 500 lux for offices, 150 lux for passageways, etc.).

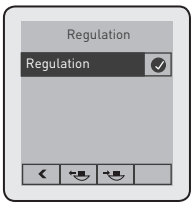




■ **Regulation**: if this is activated, the sensor constantly adapts the artificial light according to the natural light.
If this is deactivated, the sensor tests the light level when the first detection occurs but does not adapt to the external light thereafter.

For rooms with natural light, activate regulation.



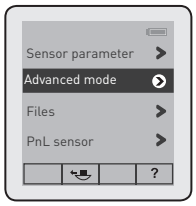


Check the wiring → Interrogate the sensor → **Set the sensor** → Check operation

SETTING THE DETECTOR (CONTINUED)

- **Additional light**: corresponds to the amount of artificial light provided (for a dimmer = amount of light when the luminaires are on 100%).

It represents the amount of artificial light. Legrand recommends that this is set to auto (value 0). The sensor will then calculate the amount of artificial light itself. This calculation is updated regularly. In dimming mode this compensates for the wear of the tubes and maintains the lighting at a constant level. The dimmer program takes the maximum value, i.e. the load at 100%.



- **Calibration**:
  Calibration is used to adjust the light level measurement according to the environment. The environment (colour of the floor, walls, etc.) affects the amount of light seen by the sensor).
  This function is only used for areas with precise lighting requirements (laboratories, ultra-clean rooms, etc.).
  This parameter can only be modified using a luxmeter (expert mode see diagnostics section).

As soon as you have modified a parameter, send it to the sensor before moving on to the next parameter (if you carry out the whole configuration on the tool and then send it to the sensor, only the last parameter will be sent).

SETTING THE SENSOR (CONTINUED)

■ **Special cases**

1. Setting the parameters associated with lighting regulation

The sensor can be configured as a motion sensor (it will not take the light level into account even when the first detection occurs).

- Self-contained sensor: set the Light level threshold parameter to maximum (1275 lux)
- BUS sensor: change the sensor type via the MyHomeSuite configuration software

2. Setting the light level threshold "by eye"

The sensor's light level threshold can be configured at the ambient light level: eye function.

1. Adjust the ambient light level (light off) to the required level (using awnings or blinds, or by waiting for the right level of natural light)
2. Set the light level threshold to 0 on the configuration tool 0 882 30, the icon appears on the screen.
3. Send the command by pressing the button

This procedure can be used to set an actual light level (seen by the installer) rather than numerical values.
It also enables the ambient light level to be given for all sensors in a room with several sensors, independently of their locations, which may have different light levels.

Caution: the human eye is not a luxmeter. It adapts to the ambient light level. Also, the eye is not at the same level as the sensor.

Example: a corridor with windows at mid-height:

■ **The eye will receive a great deal of light from outside via the horizontal beams entering through the windows.**

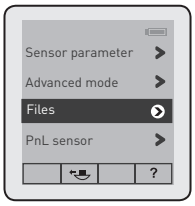
■ **The natural light, in the form of horizontal beams, does not reflect on the floor and does not light the ceiling, and the sensor does not therefore see the external light.**

Consequently the sensors will switch on even when there is a great deal of natural light.

SETTING OTHER PARAMETERS

File:

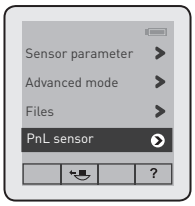
After reading the sensor's parameters, the icon can be used to save the complete configuration.



The file menu is used to manage complete saves of a sensor's settings:
- Display the content of the file
- Send the configuration contained in the file to the sensor
- Delete the file

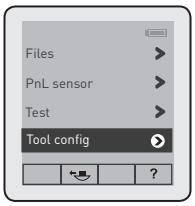
Caution: only the parameters in the Sensor parameters section will be saved

PnL sensor



This mode requires there to be an SCS system. It will be described in the SCS system guide.

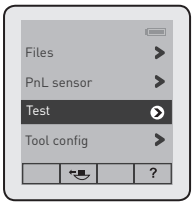
Tool config



This menu is used to:
- Change the language
- Check the remote control version
- Check the load status of the battery

Test

This menu enables various tests to be performed to validate or troubleshoot the sensor's settings.

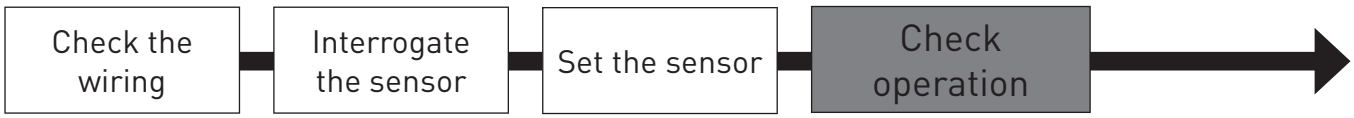


Operating test: this mode deactivates light level measurement and sets the time delay to its minimum value, for 5 min. This mode is useful for setting the sensitivity (this function is also available on the configuration tool 0 882 35 - Test button).

End of time delay: this mode ends the current time delay. It is useful for checking what happens at the end of a time delay (in particular whether loads are switched off).

Initial state: this is used, after each configuration phase, to validate the modified parameters in order to test the new configuration. (Initial state is equivalent to leaving the room, waiting for the end of the time delay, then re-entering the room).

ON/OFF command: these two commands are used to control the loads in order to check the wiring.



CHECKING OPERATION

■ **Checking detection**
(using configuration tool Cat. No. 0 882 30).

1. Click on **Operating test**.
   If the tests are not finished after 5 min, restart **Operating test**
2. Go and stand at the edges of the room (or at strategic locations such as the desk and the entrance door)
3. Move, and check that the detection LED and the loads switch on (the LED is in the sensor's lens)

Repeat steps 2 to 3 for each strategic position.
Also check that the sensor is only detecting in the required areas (for example, the sensor must not detect someone passing by in the corridor).
To adapt the detection area, change the IR and/or US sensitivity (if necessary, change the position of the sensor).

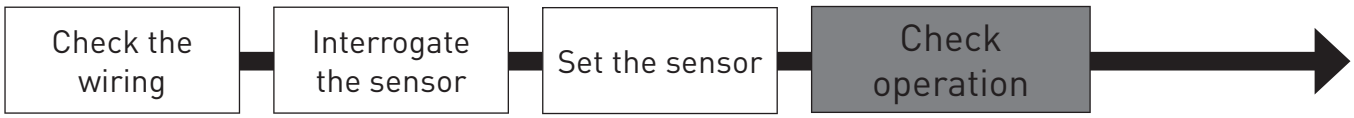
4. When all the positions have been checked, send **Initial state**.
   At this stage, the detection parameters are set.

■ **Checking lighting regulation**
(using configuration tool Cat. No. 0 882 30).

The regulation curves (in ON/OFF mode and in dimming mode) are defined so as not to disturb users of the areas and to maintain the service life of the fluorescent tubes.
It is therefore difficult to give a quick visual demonstration of how the regulation is working:

- **In On/Off mode: the sensor will wait for the light level threshold to be exceeded for 10 min before switching off**
- **In dimming mode: the lighting is dimmed very slowly. It is 1% per minute when close to the light level threshold. This is barely visible to the naked eye. Therefore it can take as long as 30 minutes before the light is switched off.**

In contrast, the response time for switching the light on is very quick, so that people are not left in the dark. This is what will be checked.



CHECKING OPERATION (CONTINUED)

1: Room with awning or blind/natural light above the threshold

1. Open the blinds
2. Send **Initial state** then move: the light should not switch on
3. Close the blinds: the light should switch on in 2 s

2: Room with no awnings or blinds/natural light above the threshold

1. Send **Initial state** then move: the light should not switch on
2. Place your hand or a cover in front of the sensor: the light should switch on

3: Natural light below the threshold

1. Send Initial state then move: the light should switch on
2. Provide an independent light source (torch, inspection lamp, portable floodlight, etc.) and shine it towards the detector
3. With ON/OFF luminaires: wait for 10 min, the light should switch off
   With dimmable luminaires: return 10 to 15 min later, the light should no longer be 100%

Set a time delay of more than 30 min if no-one remains in the room to be detected.

At this stage, the lighting regulation parameters are set.

TROUBLESHOOTING THE SENSOR

Unwanted switch-on: With a dual-technology sensor

Malfunction associated with detection
Parameters to be modified:
- Time delay
- Sensitivity
- Detection system

■ IDENTIFY THE TECHNOLOGY WHICH IS DISTURBED

1. Set the time delay to 30 s
2. In the detection system, set the 3 phases (initial, maintain and restart) in US only
3. Send **Initial state** and exit the detection area

If the problem persists, it is the US technology which is disturbed

If the problem has disappeared:

1. In the detection system, set the 3 phases (initial, maintain and restart) in IR only
2. Send **Initial state** and exit the detection area

If the problem persists, it is the IR technology which is disturbed

■ RESOLVE

1. Return the detection system to the factory settings (initial = IR and US; maintain = IR or US; restart = IR or US)
2. Reduce the sensitivity of the disturbed technology in stages
3. Send **Initial state** then leave the room between each test

■ FURTHER ACTIONS, IF NECESSARY

1. Modify the detection system in order to make detection more robust (initial = IR and US; maintain = IR and US; restart = deactivated) or disable the disturbed technology by switching to IR only or US only in initial and maintain.
2. If the malfunction persists, the sensor must be moved away from the source causing the disturbance (air flow from heating or air conditioning, etc.)
3. Return the time delay to the value stipulated in the Special Technical Specifications

Unwanted switch-on: With a single-technology sensor

Malfunction associated with detection
Parameters to be modified:
- Time delay
- Sensitivity

■ RESOLVE

1. Set the time delay to 30 s
2. Reduce the sensitivity in stages
3. Send **Initial state** then leave the room between each test
4. If the malfunction persists, the sensor must be moved away from the source causing the disturbance (the sensor must not be installed in an air flow from the heating or air conditioning)
5. Return the time delay to the value stipulated in the Special Technical Specifications

The light switches on when presence is detected even though the light level is adequate.

Malfunction associated with lighting regulation
Parameters to be modified:
Light level threshold

RESOLVE

1. Reduce the light level threshold
2. Send **Initial state**
3. Wait 5 s then move so that you are detected
4. Repeat until the light no longer switches on

Special case (Expert mode):
Resolve without altering the light level threshold
(Some design offices/installers wish to comply with the set lux value given by the Special Technical Specifications. In this case, the sensor must be recalibrated. Expert mode with luxmeter)

Calibration in rooms with blinds

1. Switch off the light
2. Measure the light level at strategic locations in the sensor's measurement area using a luxmeter
3. Take an average
4. Send the value in **Advanced mode\Calibration**
5. Switch on the light and close the blinds (or wait for night-time)
6. Measure the light level at the same strategic locations
7. Take an average
8. Send the value in **Advanced mode\Calibration**
9. Send **Initial state**

If the sensor calibration has been changed too much and the installer loses his/her way in the settings, return the sensor to factory settings by a short press followed by a long press (approximately 10 s) on the sensor's Learn button

Calibration in rooms without blinds
Please contact your local Legrand sales office

The light switches off when presence is detected even though the light level is inadequate.

Malfunction associated with detection
Parameters to be modified:
Sensitivity
Time delay

SOLUTION 1

- Increase the sensitivity in stages (send **Initial state** between each test).

SOLUTION 2

- Increase the time delay.
  For work areas, Legrand recommends time delays of between 10 and 15 min (send **Initial state** between each test).

SOLUTION 3

- Move the sensor closer to the work area.

The light does not switch on when presence is detected even though the light level is inadequate.

The light does not switch off when presence is detected even though the light level is adequate.

Malfunction associated with lighting regulation.

Solution identical to "The light switches on when presence is detected even though the light level is adequate" (p. 30).

Reminder:
With an ON/OFF luminaire: the external light level must be higher than the light level threshold + a safety coefficient, then wait at least 10 min before switching off.
With a dimmable luminaire: wait for 10 to 15 min to see whether the lighting power has decreased significantly.

Safety coefficient = 0.5 x the light level threshold.
The switch-off level = 1.5 x the light level threshold + artificial light provided.

When the threshold is less than 100 lux, the formula becomes:
The switch-off level = 150 lux + artificial light provided.

TROUBLESHOOTING WITH A BUS CONTROLLER

A control unit (manual control, remote control or sensor) is not controlling the right area

There is a wiring error, the controls are not connected to the right input or the loads are not connected to the right output

■ CORRECT THE WIRING
(Control units connected to input 1 control output 1; control units connected to input 2 control output 2; etc.)

■ RESET THE SUSPENDED CEILING CONTROLLER
(Check that the main bus is powered) by a short press followed by a long press (approximately 10 s) on the controller Learn button

■ WAIT UNTIL THE LEDS STOP FLASHING

The light stays on/does not switch on/switches on when there is no-one there

There is a problem with the setting of one or more of the sensors, see the lighting management sensor guide to resolve the problem.

After a Plug&Go procedure, some products have not been configured

This is a communication problem between the products

■ CHECK THE CABLE
It should have the same electrical characteristics as the BUS cable approved by Legrand

■ CHECK THE WIRING
There should not be any loops

■ CHECK THE BUS CABLE LENGTHS (300 M MAX)
If it is not possible to check their length, measure the voltage at the terminals of each device, it should be 20 V minimum

■ CHECK THE CONSUMPTION OF ALL THE PRODUCTS ON THE BUS
It must not exceed 200 mA

During a Push&Learn procedure, learning is closed but some products do not respond and stay in Learn mode.

This is a communication problem between the products

■ RESOLVE

■ CHECK THE CABLE

It should have the same electrical characteristics as the BUS cable approved by Legrand

■ CHECK THE WIRING

There should not be any loops

■ CHECK THE BUS CABLE LENGTHS (300 M MAX)

If it is not possible to check their length, measure the voltage at the terminals of each device, it should be 20 V minimum

■ CHECK THE CONSUMPTION OF ALL THE PRODUCTS ON THE BUS

It must not exceed the power supply capacity

APPENDIX
APPLICATION EXAMPLES

1: INDIVIDUAL OFFICE (ON/OFF LUMINAIRES)

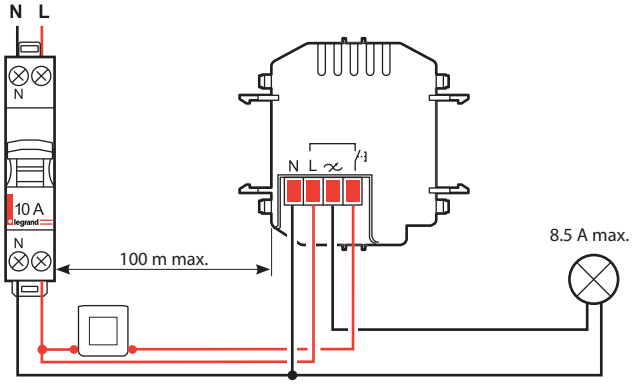
Equipment: 1 PIR&US suspended ceiling lighting management sensor = 0 488 06
1 Mosaic pushbutton = 0 770 40

Operation: Presence is detected in the room, the light does not switch on. If the light level is inadequate, the person must press the pushbutton to switch on the light.
The sensor starts regulation so that the light will only be switched on when needed.
The lighting can be controlled manually at any time (regulation is switched off). The person leaves the office. The light switches off after the time delay.

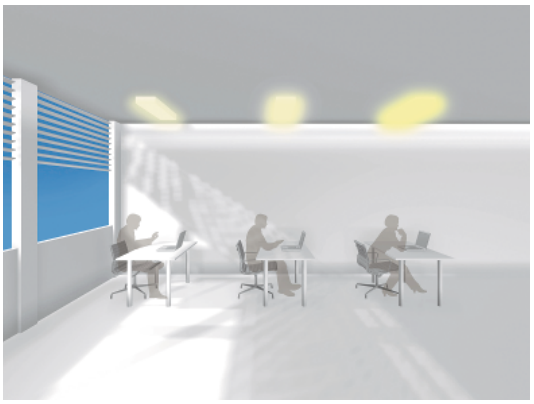
Configuration:

• Time delay:	15 minutes
• Sensitivity:	PIR = very high US = high (to be adapted to suit the room dimensions)
• Operating mode:	Manual ON/Auto OFF
• Detection system:	Initial = PIR and US Maintain = PIR or US Restart = PIR or US
• Light level threshold:	300 lux
• Regulation:	Activated
• Additional light:	Auto
• Automatic control:	Closed loop

Wiring diagram:



2: SEVERAL INDIVIDUAL OFFICES (DALI LUMINAIRES)



Equipment:

1 dual-technology suspended ceiling BUS sensor per area – 0 488 22
1 DALI suspended ceiling controller with 4 outputs for 4 offices – 0 488 44
1 lighting circuit per office with DALI dimming
1 office manual control – 0 784 71

Wiring diagram:

- Connect the sensor and the office 1 control unit to input 1 of the suspended ceiling controller
- Connect the sensor and the office 2 control unit to input 2 of the suspended ceiling controller
- Repeat the same action for each office
- Connect the office 1 lighting circuit to output 1
- Connect the office 2 lighting circuit to output 2
- Repeat the same action for each office

Operation:

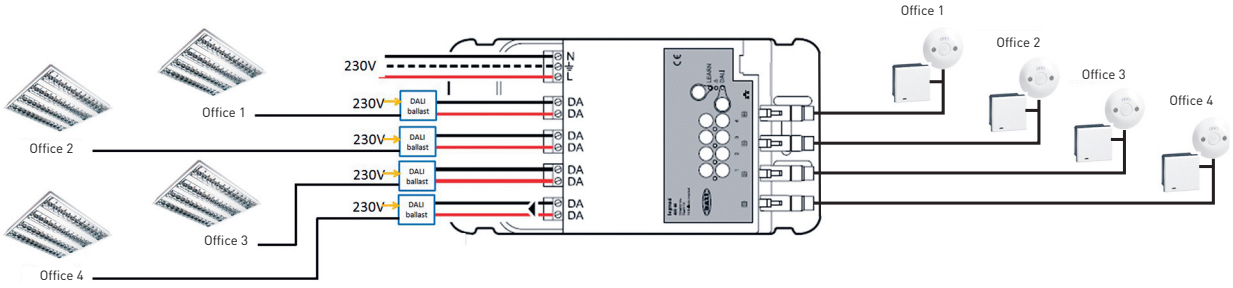
The person enters the office, nothing happens. If the occupant finds the light level too low, he presses the pushbutton which switches on the light. The light switches off if no-one is present or if the light level is adequate. The occupant can override using the manual control (short press to switch off/on and long press to dim +/-)

Configuration:

Start a Plug&Go procedure (connect the controllers to the power supply – caution, the main bus must be powered)

Using configuration tool 0 882 30, enter the following parameters in the sensors:

- Time delay: 15 minutes
- Sensitivity: PIR = very high
  US = high
- Operating mode: Manual ON/Auto OFF
- Detection system: Initial = PIR and US
  Maintain = PIR or US
  Restart = PIR or US
- Light level threshold: 300 lux
- Regulation: Activated
- Additional light: Auto
- Automatic control: Closed loop



3: CORRIDOR

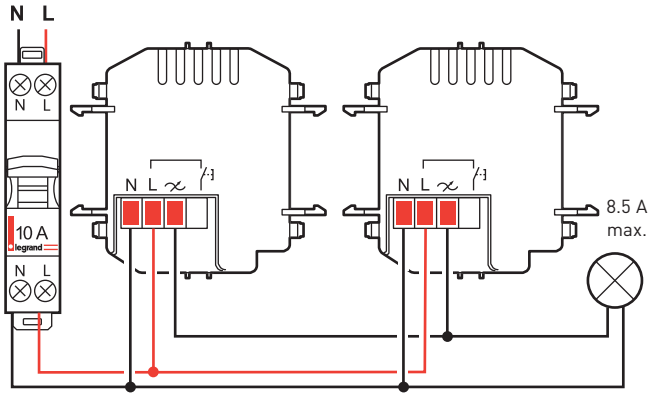
Equipment:
Option 1 (one sensor every 8 m): PIR suspended ceiling lighting management sensor = 0 488 07
Option 2 (one sensor every 20 m): PIR suspended ceiling lighting management sensor = 0 488 17

Operation:
Presence is detected in the corridor area, the light switches on if the light level is inadequate. The sensor starts regulation so that the light will only be switched on when needed.
The person leaves the corridor area. The light switches off after the time delay. If the person remains in the area for less than 20 seconds, the time delay is reduced to 3 minutes

Configuration:

• Time delay:	10 minutes
• Sensitivity:	PIR = very high (to be adapted to suit the room dimensions)
• Operating mode:	Walkthrough
• Detection system:	Initial = PIR Maintain = PIR Restart = deactivated
• Light level threshold:	100 lux
• Regulation:	Activated
• Additional light:	Auto
• Automatic control:	Closed loop

Wiring diagram:



4: MEETING ROOM

Equipment:

1 dual-technology suspended ceiling BUS sensor – 0 488 22
1 multi-application suspended ceiling controller – 0 488 47
1 scenario remote control – 0 882 32
1 main lighting circuit with 1-10 V dimming
1 ON/OFF panel lighting circuit
1 blinds circuit
1 ventilation circuit
1 manual control for controlling blinds – 0 784 71
1 manual control for controlling the 2 lighting circuits – 0 784 73

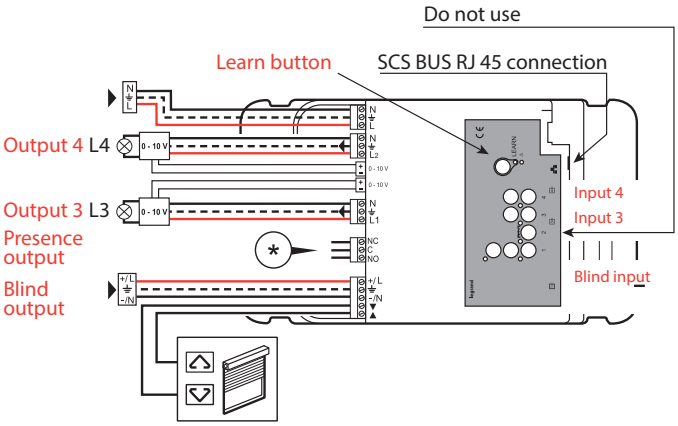
Operation:

The BUS sensor switches on the main lighting circuit when presence is detected and the light level is inadequate. It switches off the main lighting circuit if no-one is present. It varies the main lighting circuit light level according to the external light level.

As soon as presence is detected (the light level does not matter), the ventilation is activated, and cuts out at the end of the time delay.

A manual control is used to control the blinds, a dual manual control is used to control each lighting circuit. A remote control is used to initiate scenarios (projection scenario, end of projection, etc.). The initiated scenario will remain active while presence is detected, or until another scenario is initiated. At the end of the time delay, the lights switch off, the ventilation cuts out. The system will restart in automatic mode when presence is next detected.

Wiring diagram:



- Connect the sensor and the dual control unit to input 3 of the suspended ceiling controller
- Connect the single control unit to input 1 of the suspended ceiling controller
- Connect the main lighting circuit to output 3
- Connect the panel lighting circuit to output 4
- Connect the blinds circuit to output 1
- Connect the ventilation circuit to output 2
- Connect the manual control unit to one of the inputs on a controller (optional)

4: MEETING ROOM (CONTINUED)

Configuration:

Start a Plug&Go procedure (connect the controller to the power supply – caution, the main bus must be powered)

Using configuration tool 0 882 30, enter the following parameters in the sensor:

- Time delay: 15 minutes
- Sensitivity: PIR = very high
  US = high
- Operating mode: Auto ON/OFF
- Detection system: Initial = PIR and US
  Maintain = PIR or US
  Restart = deactivated
- Light level threshold: 300 lux
- Regulation: Activated
- Additional light: Auto
- Automatic control: Closed loop

Start a Push&Learn procedure for each remote control scenario

Example of a scenario:
Projection scenario (blind lowered, main light subdued, panel lighting OFF)

- Short press on the remote control Learn button
- Short press on the remote control action button (the button which will initiate the scenario)
- Short press on the controller Learn button
- Short press on the down button on the Blind output
- Short press on the ON button on output 3
- Adjustment of the lighting power using the +/- buttons on output 3
- Short press on the OFF button on output 4
- Short press on the remote control Learn button
- End of projection scenario (blind raised, main light in regulation mode, panel light ON)
- Short press on the remote control Learn button
- Short press on the remote control action button (the button which will initiate the scenario)
- Short press on the controller Learn button
- Short press on the Up button on the Blind output
- Short press on the ON button on output 3
- Short press on the ON button on output 4
- Short press on the remote control Learn button
- Lower blind scenario (blind down)
- Short press on the remote control Learn button
- Short press on the remote control action button (the button which will initiate the scenario)
- Short press on the controller Learn button
- Short press on the Down button on the Blind output
- Short press on the remote control Learn button
- Raise blind scenario (blind raised)
- Short press on the remote control Learn button
- Short press on the remote control action button (the button which will initiate the scenario)
- Short press on the controller Learn button
- Short press on the Up button on the Blind output
- Short press on the remote control Learn button

5: OFFICE SUITE

Equipment:

1 dual-technology suspended ceiling BUS sensor per area – 0 488 22
1 suspended ceiling controller with 4 DALI outputs for 4 areas – 0 488 44
1 remote control per area – 0 882 31
1 lighting circuit per area with DALI dimming
1 general manual control for the office suite – 0 784 71 (optional)

Wiring diagram:

- Connect the area 1 sensor to input 1 of the suspended ceiling controller
- Connect the area 2 sensor to input 2 of the suspended ceiling controller
- Repeat the same action for each area
- Connect the area 1 lighting circuit to output 1
- Connect the area 2 lighting circuit to output 2
- Repeat the same action for each area
- Connect the manual control unit to one of the inputs on a controller (optional)

Operation:

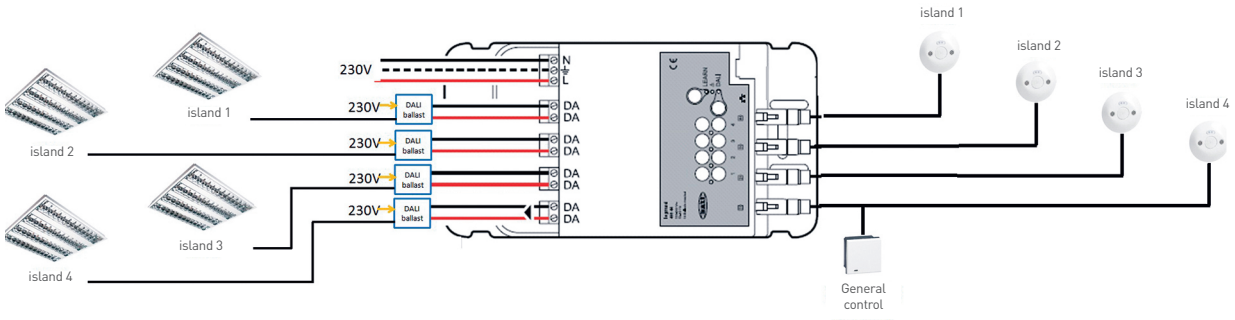
The BUS sensor switches on the area lighting circuit when presence is detected and the light level is inadequate. It switches off the area lighting circuit if no-one is present. It varies the lighting circuit light level according to the external light level. A remote control can be used to override the scenario (manually control the light) and this override will remain active while presence is detected.
As an option, it is possible to add a general manual control for the office suite which will switch on/off all the lights in the office suite.

Configuration:

Start a Plug&Go procedure (connect the controllers to the power supply – caution, the main bus must be powered)

Using configuration tool 0 882 30, enter the following parameters in the sensors:

- Time delay: 15 minutes
- Sensitivity: PIR = very high
  US = high
- Operating mode: Auto ON/OFF
- Detection system: Initial = PIR and US
  Maintain = PIR or US
  Restart = PIR or US
- Light level threshold: 300 lux
- Regulation: Activated
- Additional light: Auto
- Automatic control: Closed loop



5: OFFICE SUITE (CONTINUED)

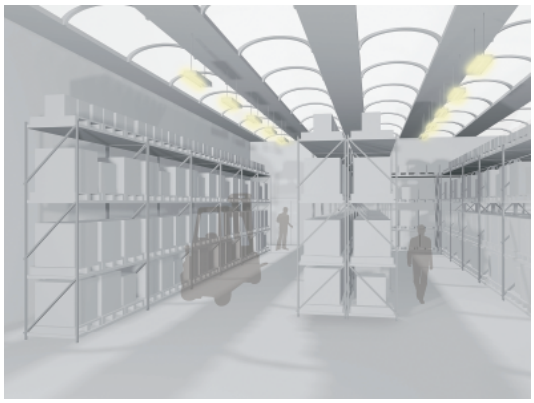
- Start a Push&Learn procedure for each remote control
- Short press on the remote control Learn button
- Short press on the remote control ON button (of unit 1)
- Short press on the Learn button on the controller controlling the area
- Short press on the ON button on the output controlling the area
- Short press on the remote control Learn button

Caution, each time the remote control is pressed, it should be aimed at the area sensor.

- Start a Push&Learn procedure for the office suite general control (optional)
- Short press on the control unit Learn button
- Short press on the control unit ON button
- Short press on the Learn button on controller 1
- Short press on the ON button on each output
- Repeat for each controller
- Short press on the control unit Learn button

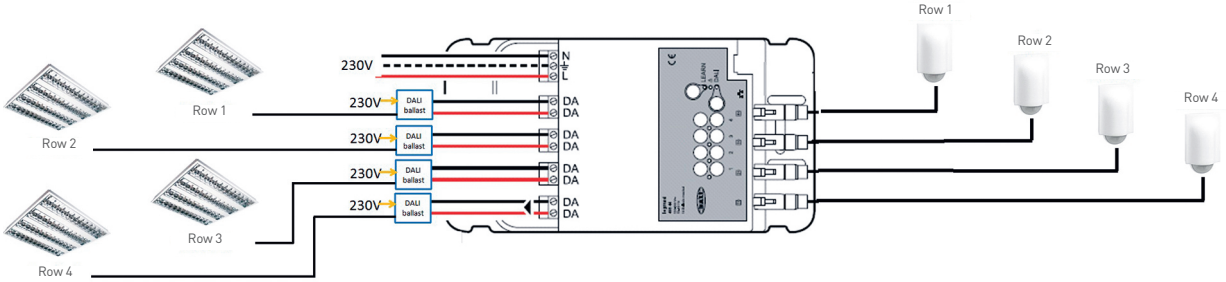
OFF is configured automatically (only valid with a switch mode control unit – 0 784 71/73; for the others, a Push&Learn procedure should also be performed for the OFF function)

6: WAREHOUSE



Equipment:
1 BUS sensor for circulation areas, surface-mounted on each row – 0 488 34
1 suspended ceiling controller with 4 DALI outputs for 4 rows – 0 488 44
1 lighting circuit per row with DALI dimming

Wiring diagram:
- Connect the row 1 sensor to input 1 of the suspended ceiling controller
- Connect the row 2 sensor to input 2 of the suspended ceiling controller
- Repeat the same action for each row
- Connect the row 1 lighting circuit to output 1
- Connect the row 2 lighting circuit to output 2
- Repeat the same action for each row



Operation:
For each row, the BUS sensor switches on the row lighting circuit when presence is detected and the light level is inadequate. It switches off the row lighting circuit if no-one is present. It varies the row circuit light level according to the external light level.

Configuration:

Start a Plug&Go procedure (connect all the controllers to the power supply – caution, the main bus must be powered)

Using configuration tool 0 882 30, enter the following parameters in each sensor:

• Time delay:	15 minutes
• Sensitivity:	PIR = very high
• Operating mode:	Walkthrough mode
• Detection system:	Initial = PIR
	Maintain = PIR
	Restart = deactivated
• Light level threshold:	200 lux
• Regulation:	Activated
• Additional light:	Auto
• Automatic control:	Closed loop

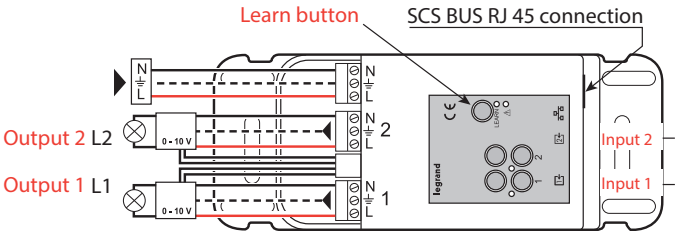
7: RECEPTION AREA

Equipment:
1 dual-technology suspended ceiling BUS sensor – 0 488 22
1 suspended ceiling controller with 2 x 1-10 V outputs – 0 488 42
1 x 2-gang pushbutton control – 0 784 73
1 main lighting circuit with 1-10 V dimming
1 ON/OFF wall lighting strip circuit

Operation:
The BUS sensor switches on the reception area lighting circuit when presence is detected and the light level is inadequate. It switches off the main lighting circuit if no-one is present. It varies the main circuit light level according to the external light level. A pushbutton can be used to override the scenario (manually control the light) and this override will remain active as long as presence is detected.

A second pushbutton manually controls the wall lighting strip circuit.

Wiring diagram:



- Connect the sensor and the dual control unit to input 1 on the suspended ceiling controller
- Connect the main lighting circuit to output 1
- Connect the wall lighting strip circuit to output 2

Configuration:
Start a Plug&Go procedure (connect the controller to the power supply – caution, the main bus must be powered)
Using configuration tool 0 882 30, enter the following parameters in the sensor:

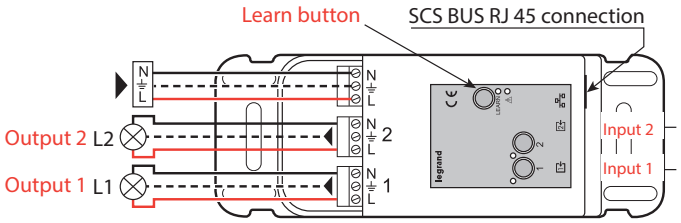
- Time delay: 15 minutes
- Sensitivity: PIR = very high
- Operating mode: Auto ON/OFF
- Detection system: Initial = PIR
  Maintain = PIR
  Restart = deactivated
- Light level threshold: 150 lux
- Regulation: Activated
- Additional light: Auto
- Automatic control: Closed loop

8: CAR PARK

Equipment:
1 IP55 wall-mounting BUS sensor per area – 0 488 34
1 suspended ceiling controller with 2 ON/OFF outputs for 2 areas – 0 488 41
1 ON/OFF lighting circuit per area

Operation:
The person enters the car park, the area he/she is in switches on. The light switches off once no-one is present. Areas will switch on as the person moves about the car park.

Wiring diagram:



- Connect the area 1 sensor to input 1 on the suspended ceiling controller
- Connect the area 2 sensor to input 2 on the suspended ceiling controller
- Repeat the same action for each area
- Connect the area 1 lighting circuit to output 1
- Connect the area 2 lighting circuit to output 2
- Repeat the same action for each area

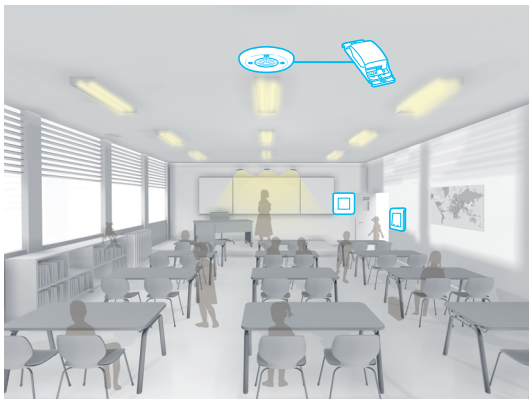
Configuration:

Start a Plug&Go procedure (connect the controllers to the power supply – caution, the main bus must be powered)

Using configuration tool 0 882 30, enter the following parameters in the sensors:

- Time delay: 15 minutes
- Sensitivity: PIR = very high
- Operating mode: Auto ON/OFF
- Detection system: Initial = PIR
  Maintain = PIR
  Restart = deactivated
- Light level threshold: 150 lux
- Regulation: Deactivated
- Additional light: Auto
- Automatic control: Closed loop

9A: CLASSROOM (SOLUTION WITH 2 LIT AREAS)



Equipment:
1 PIR&US suspended ceiling lighting management sensor – 0 488 22
2 Mosaic pushbuttons – 0 770 30 (room lighting)
1 Mosaic switch – 0 770 11 (panel lighting)
1 analogue controller for DALI luminaires – 0 488 51

Operation:
The person enters the room, the light does not switch on.
If the light level is inadequate, the person should press the pushbutton to switch on the light.
Both lighting channels switch on with a 30% difference between the window side channel and the corridor side channel.
The sensor activates regulation so that the light will only be switched on when needed.
The person can control the lighting manually at any time (regulation is deactivated).
A switch can be used to switch the panel light on/off.

The person leaves the office. After the time delay, the room and panel lights switch off.

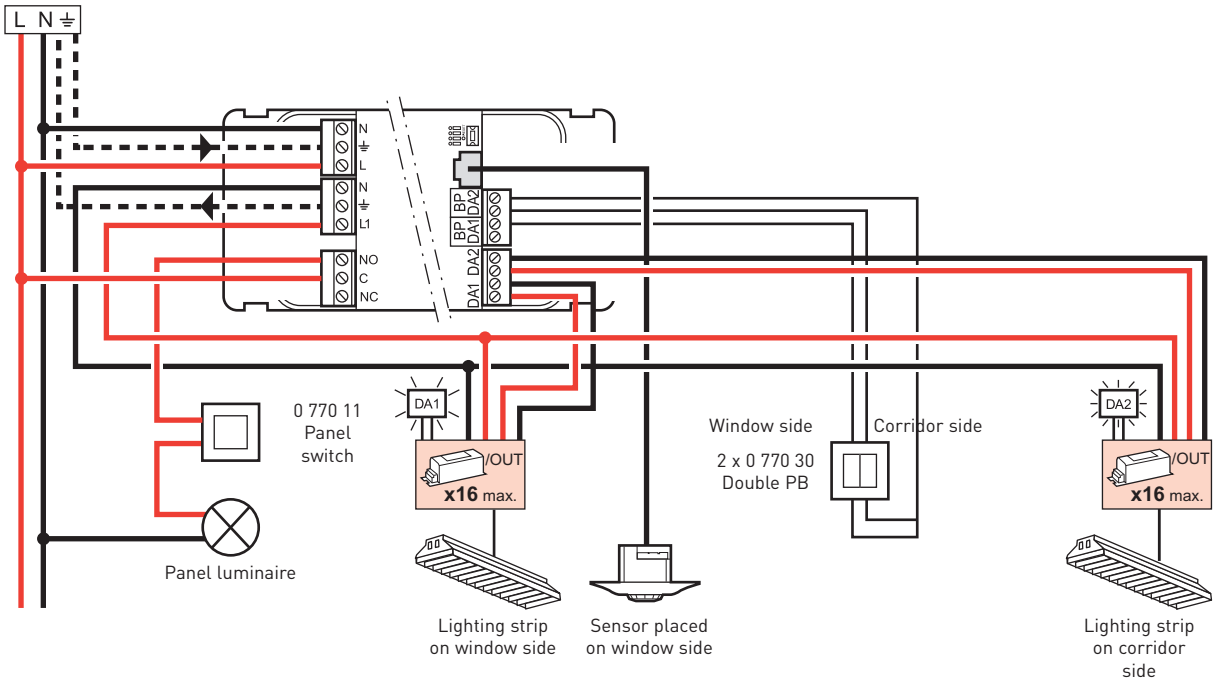
Status memory: if the panel was on before the general switch-off, when someone comes back into the room, the panel will come back on.

9A: CLASSROOM
(SOLUTION WITH 2 LIT AREAS) (CONTINUED)

Configuration:

- Time delay: 15 minutes
- Sensitivity: PIR = very high/US = high
  (to be adapted to suit the dimensions of the room)
- Operating mode: Manual ON/Auto OFF
- Detection system: Initial = PIR and US
  Maintain = PIR or US
  Restart = PIR or US
- Light level threshold: 300 lux
- Regulation: Activated
- Additional light: Auto
- Automatic control: Closed loop

Wiring diagram:



9B: CLASSROOM (SOLUTION WITH 3 LIT AREAS)

Wiring diagram:

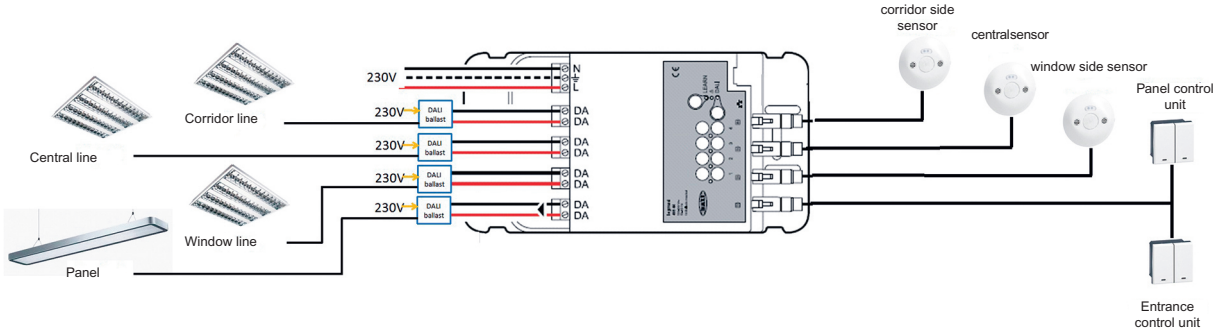
- Connect the ceiling lighting line 1 sensor to input 1 of the suspended ceiling controller
- Connect the ceiling lighting line 2 sensor to input 2 of the suspended ceiling controller
- Connect the ceiling lighting line 3 sensor to input 3 of the suspended ceiling controller
- Connect both manual controls to input 4 of the suspended ceiling controller
- Connect the lighting line 1 lighting circuit to output 1
- Connect the lighting line 2 lighting circuit to output 2
- Connect the lighting line 3 lighting circuit to output 3
- Connect the panel lighting circuit to output 4

Equipment:

3 dual-technology suspended ceiling BUS sensors per area – 0 488 22
1 suspended ceiling controller with 4 DALI outputs – 0 488 44
1 lighting circuit per lighting line with DALI dimming
1 panel lighting circuit
2 dual manual controls – 0 784 73

Operation:

When someone enters the classroom, the ceiling lights switch on. Their brightness will adapt to the external light. When people leave the classroom, all the lights switch off. Dual manual controls (1 near the panel, the other at the entrance to the classroom) can be used to switch the panel on/off and override the ceiling light (when override is effective, the light level remains in the state selected by the user until everyone has left)



9B: CLASSROOM
(SOLUTION WITH 3 LIT AREAS) (CONTINUED)

Configuration:

Start a Plug&Go procedure (connect the controllers to the power supply – caution, the main bus must be powered)

Using configuration tool 0 882 30, enter the following parameters in the sensors:

- Time delay: 15 minutes
- Sensitivity: PIR = very high
  US = high
- Operating mode: Partial ON/Group OFF
- Detection system: Initial = PIR and US
  Maintain = PIR or US
  Restart = deactivated
- Light level threshold: 300 lux
- Regulation: Activated
- Additional light: Auto
- Automatic control: Closed loop

- Start a Push&Learn procedure for each sensor
- Short press on the sensor Learn button
- Short press on the sensor Learn button
- The controller LED flashes and the output to which the sensor is connected is ON
- Short press on the ON button on the other 3 controller outputs
- Short press on the sensor Learn button
- Repeat the same programming for each of the sensors
- Start a Push&Learn procedure for each dual control
- Short press on the control unit Learn button
- Short press on the ON button on the control unit (right-hand side)
- The controller LED flashes and output 3 is ON
- Short press on the ON button on outputs 1 and 2
- Short press on the control unit Learn button
- Repeat the same programming for the other control

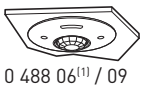
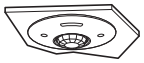
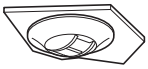
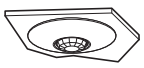
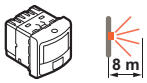
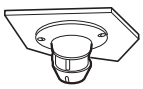
SELF-CONTAINED RANGE

LIST OF SELF-CONTAINED LIGHTING MANAGEMENT SENSORS

AREAS WITH NATURAL LIGHT

Automatic switch-on/switch-off, RT 2012 compliant, check presence and light level continuously

RT 2012

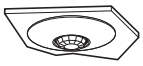
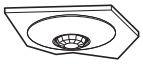
WORKPLACES			
Individual office, classroom, meeting room, open-plan office space	  0 488 06[1] / 09	  0 489 16[2] 0 489 14[2]	 0 784 52 0 784 53[1]
PASSAGEWAYS			
Hall, stairs, etc.	  0 488 07[1] 0 488 08[1]	 0 489 17[2]	 0 784 54[1] 0 784 55[3] - 2-wire
Corridor	  0 488 17[1]	 0 489 17[2]	 0 784 54[1] 0 784 55[3] - 2-wire
High ceiling area (gymnasium, storage area, etc.)	 0 489 32 (surface mounted)	 0 489 33	-
Toilets, bathroom, cloakrooms, small storage area	  0 488 04[2]	 0 489 16[2] 0 489 14[2]	 0 784 54[1] 0 784 55[3] - 2-wire
IP 55 OUTDOORS AND DAMP AREAS			
Outdoor car park, cellar, test room, laboratory	  0 489 32 (surface mounted)   0 489 33 directional head	 0 489 33 directional head	-

1: Can be surface mounted using an accessory, to be ordered separately - 2: 1 lighting output + 1 ventilation output - 3: Version for refurbishment installations

LIST OF SENSORS AND CONTROLLERS FOR MANAGING SEVERAL CIRCUITS

CHOICE OF SENSOR...

Automatic switch-on/switch-off, RT 2012 compliant, check presence and light level continuously — RT 2012

	INSTALLATION	
	Ceiling	Wall mounted / Flush mounted
WORKPLACES		
Individual office, classroom	 0 488 22 	 0 784 86 
PASSAGEWAYS		
Small storage area, toilets, cloakroom, etc.	 0 488 20 	 0 784 85 
Long areas (corridor, etc.)	 0 488 20 	-

... AND CIRCUITS TO BE CONTROLLED

	ON-OFF	DIMMING		
		DALI	1-10 V	Halogen - Incandescent - DIMMABLE LED[1]
1 lighting circuit in 1 room	0 488 50	0 488 51	0 488 52	0 488 45
1 lighting circuit + HVAC circuit in 1 room	0 488 50	0 488 51	0 488 52	-
2 lighting circuits in 1 room	0 488 50	0 488 51	0 488 52	0 488 45
2 lighting circuits + HVAC circuit in 1 room	-	0 488 51	-	-
2 lighting circuits (2 inputs, 2 outputs) **in 2 rooms**	0 488 41	-	0 488 42 (1000 VA)	0 488 45
4 lighting circuits (4 inputs, 4 outputs) **in 4 rooms**	0 488 43	0 488 44 (max. 32 ballasts)	0 488 43	-
2 lighting circuits + 1 shutter circuit + 1 HVAC circuit (4 inputs, 4 outputs) **in 1 room**	0 488 47	-	0 488 47	-

1: Refer to the load table in the technical data sheet available online in the e-catalogue (**Note**: some dimmable LEDs available on the market are not compatible)

KEY TO PICTOGRAMS


PIR technology


US technology

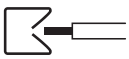

PIR/US technology


Manual ON/Auto OFF mode


Walkthrough mode


Auto ON/Auto OFF mode


Detection technology


Capacity of the automatic terminals


Capacity of the screw terminals


Capacity of the fast connection plug

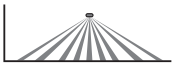

Light level


Time delay


Sensitivity


Factory-set light level

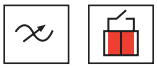

Factory-set time delay

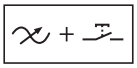

Detection zone


Operating temperature


Light load


Frequency


Phase cut


Volt-free contact output


Measurement of light level


Battery charging


Time


Parameter setting

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