

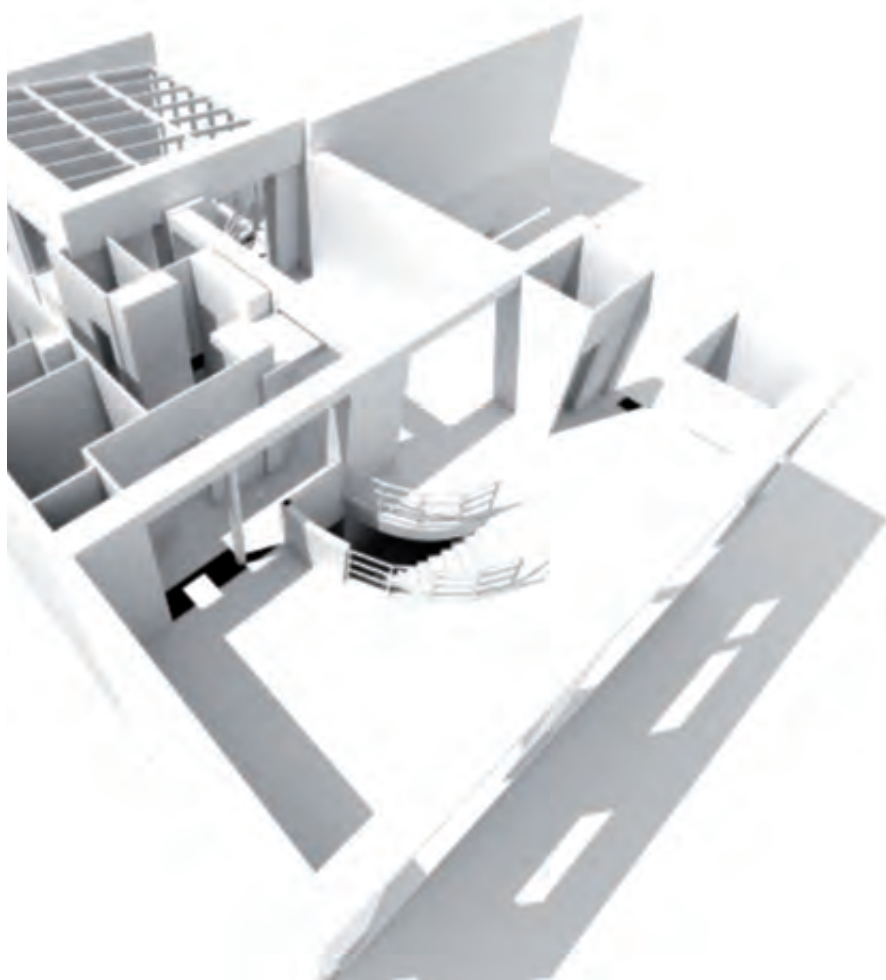
Lighting Management solutions

Best practice guide for office buildings

PUTTING A STOP TO ENERGY WASTE

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LIGHTING CONTROL BEST PRACTICE GUIDE FOR OFFICE BUILDINGS

With years of experience developing and producing lighting controls, Legrand has helped many organizations identify and implement energy saving lighting control systems. While every facility offers unique challenges, there are optimal solutions available that meet the needs of building owners as well as facility managers and occupants.

Legrand offers a comprehensive range of lighting control products encompassing several product lines: occupancy sensors, actuators, daylighting controls, and products for integrated control among multiple building systems. With these product resources and unsurpassed technical expertise, Legrand ensures that lighting professionals choose the right combination of products to achieve the control needs of today's office buildings.

This Best Practice publication focuses on design, specification, and installation guidance for lighting management in commercial office buildings. It features applications that illustrate the best control practices for a variety of spaces. Each best practice considers the space use characteristics, occupant needs, lighting operation costs, energy savings and compliance with the requirements of most national standards.

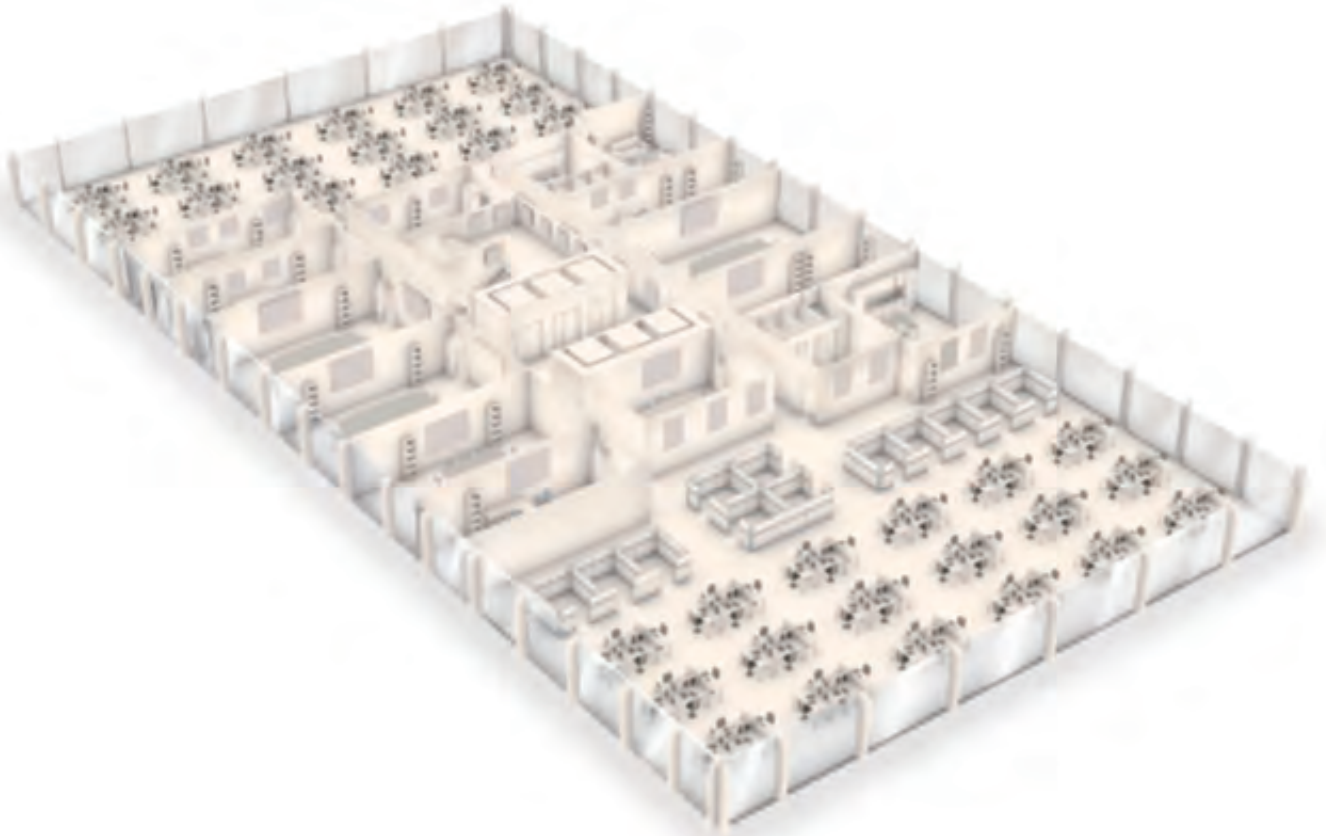
Each Best Practice includes:

- Description of application
- List of control needs
- Product solution
- Design considerations
- Lighting plan sketch
- Installation notes
- Wiring and installation diagrams
- Equipment schedule.

For each of the examples given in this document, there is a recommended configuration method:

- Plug n'go: products automatically self-configure when powered up.
- Push n' learn: configuration is done by hand (no tool required) by pressing the learn key on each product.
- Software suite: software-based configuration to meet functionally more advanced requirements.

The best practice for open office areas is dependent upon the building size and the owner's needs. For small, single floor office buildings or an open office area in a leased space, occupancy sensors are a good strategy. For larger, owner occupied buildings, or multi-floor tenants, scheduling using actuators is recommended because one time clock can control lighting on multiple floors. Combining scheduling and occupancy sensors control offers the benefit and convenience of keeping lighting on during normal hours of operation, yet after hours allows occupancy based control for additional energy savings.

















OFFICE BUILDING BEST PRACTICE GUIDE ROADMAP

The Best Practice Guide uses the office building layout above as a working key plan. Each space type in the floor plan has at least one lighting control best practice contained in the guide. Determine a best practice lighting control design for each building space by using the summary chart (next page) to find the solution that fits your space needs. Additional solutions are included for exterior lighting and for overall building-wide lighting control system design.

These best practice designs address typical control needs in common office spaces. Although not described in this guide, many other areas in an office building are ideal for lighting control including atriums, cafeterias, warehouses, exercise rooms, IT server rooms and more.

SUMMARY OF BEST PRACTICES FOR LIGHTING CONTROL IN OFFICE BUILDINGS

Space/application practice	Detection technology		Control strategy	Daylighting	Control	Scenarios	Type of loads	Motors control	Page
Small conference room (1)		PIR	Vacancy sensing	yes	ON/OFF	no	LED	no	5
Small conference room (2)		Dual tech	Occupancy sensing	no	Dimming	no	1-10 V fluorescent Eco halogen	yes	9
Large conference room (1)		Dual tech	Vacancy sensing	yes	Dimming	no	1-10 V fluorescent	no	13
Large conference room (2)		Dual tech	Vacancy sensing	yes	ON/OFF dimming	yes	1-10 V fluorescent Eco halogen	yes	17
Private offices		PIR	Vacancy sensing	yes	Dimming	no	1-10 V fluorescent	no	21
Large private office		Dual tech	Vacancy sensing	yes	ON/OFF dimming	no	1-10 V fluorescent	yes	25
Kitchen		PIR	Occupancy sensing	no	ON/OFF	no	Fluorescent	yes	29
Open office (1)		Dual tech	Vacancy sensing	yes	Dimming	no	DALI	no	33
Open office (2)	N/A	N/A	Time scheduling	yes	Dimming	no	DALI	no	37
Cubicle		Dual tech	Vacancy sensing	no	ON/OFF	no	Fluorescent	no	41
Hallway elevator (1)		Ultrasonic	Occupancy sensing	no	ON/OFF	no	Fluorescent	no	45
Hallway elevator (2)		Ultrasonic	Time scheduling	no	ON/OFF	no	Fluorescent	no	49
Lobby		PIR & Dual tech	Occupancy sensing	yes	Dimming	yes	Halogen	no	53
Restroom		Ultrasonic	Occupancy sensing	no	ON/OFF	no	Fluorescent	yes	57
Exterior		PIR	Occupancy sensing	yes	ON/OFF	no	HID lamps, fluorescent	no	61

SMALL CONFERENCE ROOM





- Vacancy sensing
- ON/OFF control LED
- Daylighting

CONTROL NEEDS

1. Manual lighting control with automatic OFF based on occupancy
2. Manual ON by push-buttons

LIGHTING

Ceiling-mounted LED luminaires

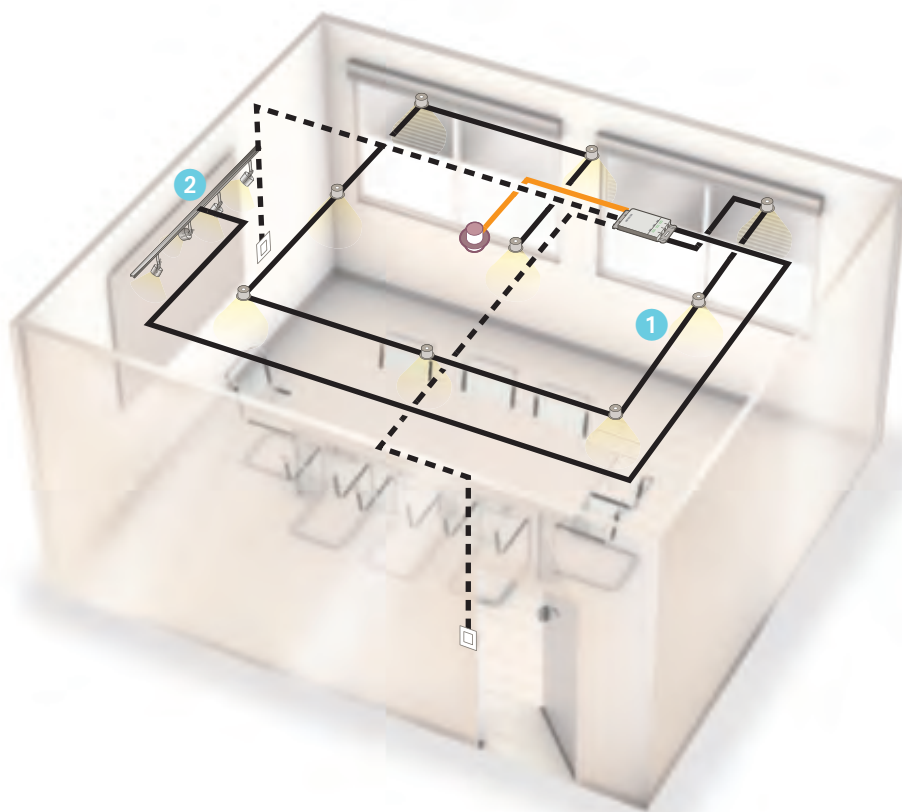
APPLICATION DESCRIPTION

Space use	Meetings of small groups (e.g. project team)
Dimensions	4 x 5 m = 20 m ²
Ceiling height	2.50 m
Windows	Along one wall providing view to exterior provided with horizontal blinds provided

SOLUTION

1. Ceiling-mounted PIR sensor
2. Room controller 2 outputs
3. Push-buttons

Vacancy sensing, ON/OFF control LED, daylighting



LIGHTING PLAN

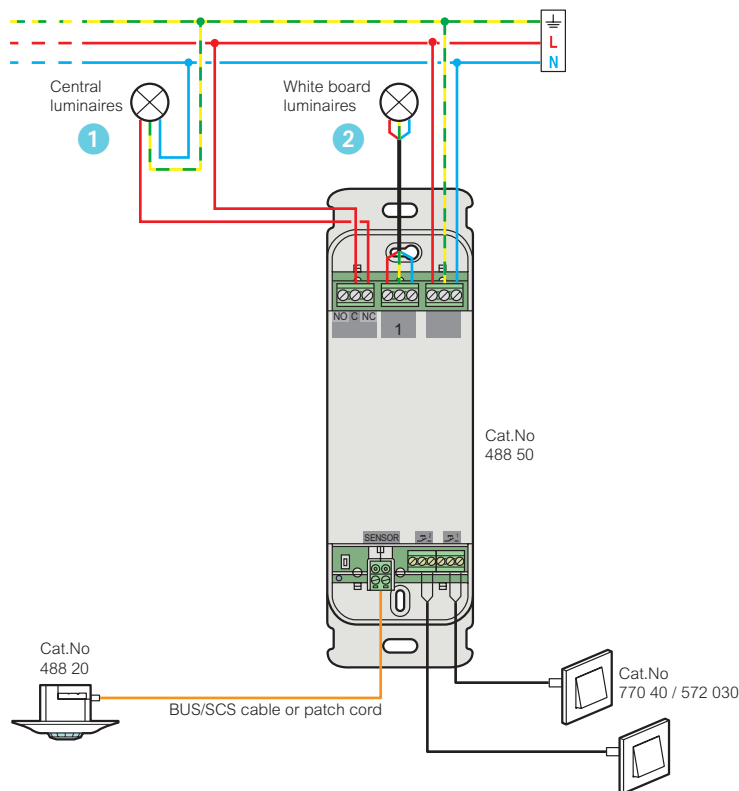
6

DESIGN SOLUTION DESCRIPTION

The push-button Cat.No 770 40 or push-button with LED indicator Cat.No 770 33 (Mosaic) or push-button Cat.No 572 030 square version or Cat.No 573 050 round version (Arteor) are used to turn ON/OFF manually the central light circuit (circuit 1) and the white board lights (circuit 2).

The PIR BUS sensor Cat.No 488 20 is mounted in the centre of the conference room for a full view. It turns all lights off when the room is not occupied. It turns the central lights OFF (circuit 1) when the lux set point is reached.

The room controller Cat.No 488 50 is fixed on the cable tray in the false ceiling.



Plug n' go
Configuration for connecting products to the BUS/SCS line

INSTALLATION AND WIRING DETAILS

INSTALLATION NOTES

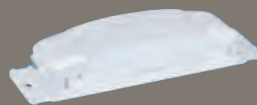
1. Mount the BUS sensor Cat.No 488 20 in the centre of the room for a full view of the room. Mount the push-button Cat.No 770 40 or Cat.No 770 33 (Mosaic), 572 030 or 573 050 (Arteor) at the entrance of the room and near the white board.
2. Connect the BUS sensor and the push-button to the room controller Cat.No 488 50. The connection between the BUS sensor Cat. No 488 20 and the room controller Cat.No 488 50 can be made with BUS/SCS cable Cat.No 492 31/32/33 or RJ 45 patch cord.
3. Position the switch of the controller on position "⊗". Daylight function will control circuit ① only. Please refer to instruction sheets for more details.
4. The sensor is shipped with a factory pre-set time delay of 15 minutes, 500 lux and sensitivity at maximum. Please note that standard EN 15 193 recommends 500 lux for small conference rooms, use the mobile configurator Cat.No 882 30 to change sensor settings if needed (time, lux, sensitivity).

SMALL CONFERENCE ROOM

- Vacancy sensing
- ON/OFF control LED
- Daylighting

EQUIPMENT SCHEDULE LOCAL MANAGEMENT

1st option		
Cat.Nos	Quantity	Description
488 50	1	Room controller 2 outputs 16 A
488 20	1	Ceiling-mounted PIR BUS sensor 360 °
770 40	2	Push-button - Mosaic
572 030	2	Push-button square version Arteor
573 050	2	Push-button round version Arteor



488 50



488 20



770 40

EQUIPMENT SCHEDULE CENTRALIZED MANAGEMENT

2nd option		
Cat.Nos	Quantity	Description
488 41	1	BUS/SCS lighting room controller ON/OFF 2 outputs 16 A
488 20	1	Ceiling-mounted PIR BUS sensor 360 °
784 75	2	BUS lighting control unit 1-way - Mosaic
573 987	2	BUS lighting control unit - Arteor



488 41



488 20



784 75

Please refer to page 65 for more information (Centralized management)



- Occupancy sensing
- Dimming control fluorescent 1-10 V
- ON/OFF control ECO halogen
- Automation control

CONTROL NEEDS

1. Automatic lighting control based on occupancy
2. Manual control over the 2 outputs (halogen lights + screen)
3. Occupancy-based control of fan system
4. Fully automatic-OFF

LIGHTING

Ceiling-mounted T5 luminaires, 1-10 V ballast
LED luminaires

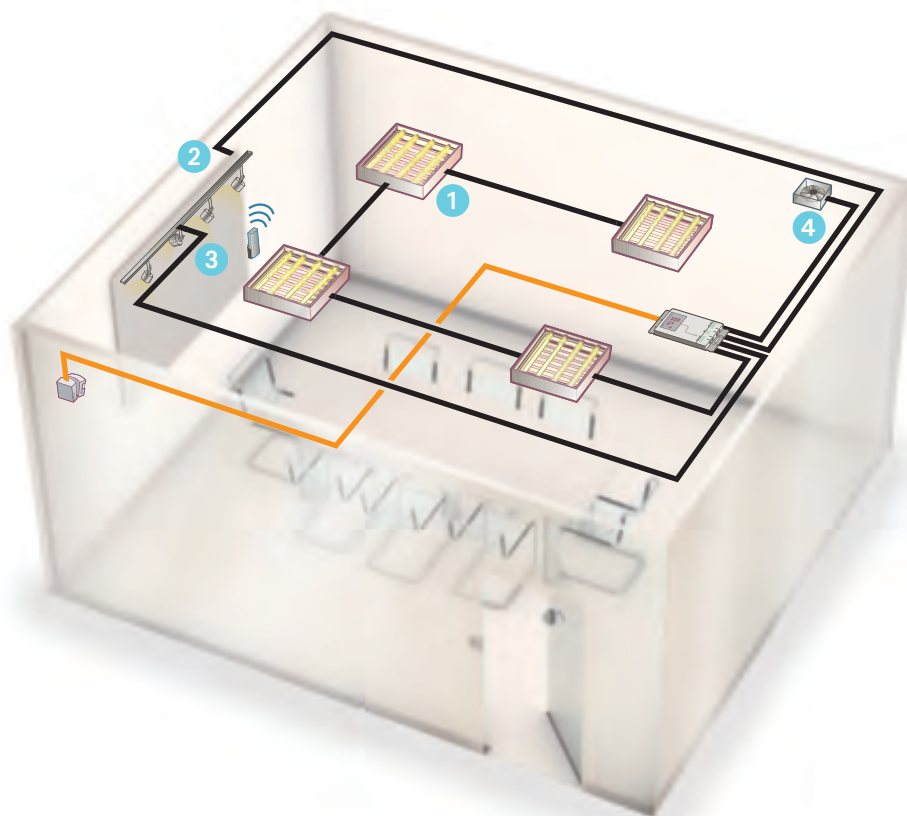
APPLICATION DESCRIPTION

Space use	Meetings of small groups (e.g. project team)
Dimensions	5x5 m = 25 m ²
Ceiling height	2.50 m
Windows	None

SOLUTION

1. Wall-mounted DUAL technology BUS sensor
2. BUS/SCS room controller 2 outputs for lights (1 for halogen & 1 for fluorescent) + 2 outputs for automation (1 for the fan + 1 for the screen)
3. Remote control

Occupancy sensing, dimming control fluorescent 1-10 V, ON/OFF control ECO halogen, automation control



LIGHTING PLAN

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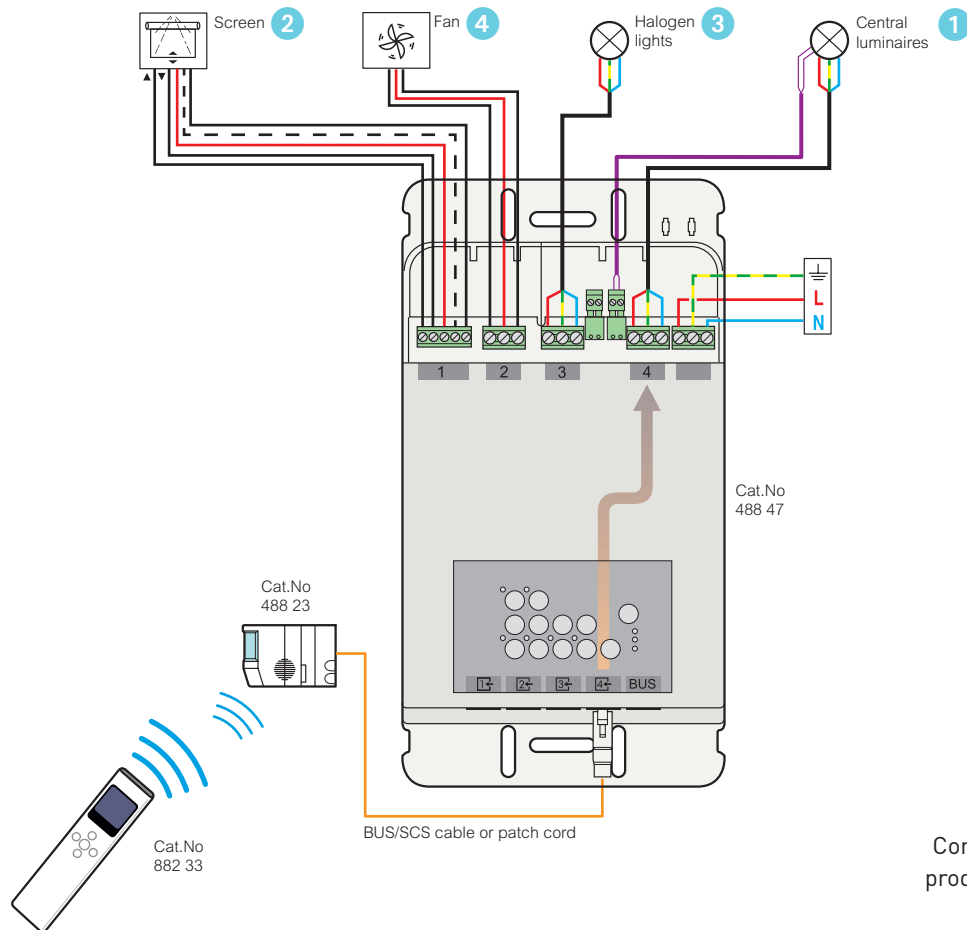
DESIGN SOLUTION DESCRIPTION

The occupancy BUS sensor is used to automatically turn lights ON (circuit ①) & fan ON (circuit ④) when the conference room is occupied. The BUS sensor Cat.No 488 23 is mounted in the corner to prevent a view out the doorway that might otherwise result in false activation.

The remote control Cat.No 882 33 is used to turn halogen lights ON & OFF (circuit ③), to control the screen (circuit ②) and to dim manually the central lights (circuit ①).

All lights + the fan system are turned OFF when the room is not occupied.

The BUS/SCS room controller Cat.No 488 47 is mounted in the false ceiling on the cable tray.



Push n' learn
Configuration for connecting products to the BUS/SCS line

INSTALLATION AND WIRING DETAILS

INSTALLATION NOTES

1. Mount the BUS sensor Cat.No 488 23 in the corner.
2. Connect the BUS sensor to the BUS/SCS room controller Cat.No 488 47 on input 4. The connection between the BUS sensor Cat.No 488 23 and the BUS/SCS room controller Cat.No 488 47 can be made with BUS/SCS cable Cat.No 492 31/32/33 or RJ 45 patch cord. Connect the 4 circuits to the BUS/SCS room controller.
3. Configure the remote control Cat.No 882 33 and the sensor to the room controller using the push & learn mode [see push & learn manual for more details].
4. The sensor is shipped with a factory pre-set time delay of 15 minutes, 300 lux and sensitivity at maximum. Please note that standard EN 15 193 recommends 500 lux for small conference rooms, use the mobile configurator Cat.No 882 30 to change sensor settings if needed (time, lux, sensitivity).

SMALL CONFERENCE ROOM

- Occupancy sensing
- Dimming control fluorescent 1-10 V
- ON/OFF control ECO halogen
- Automation control

EQUIPMENT SCHEDULE LOCAL MANAGEMENT & CENTRALIZED MANAGEMENT

Cat.Nos	Quantity	Description
488 47	1	BUS/SCS room controller 2 outputs ON/OFF or 1-10 V, 2 outputs for blinds or fans
488 23	1	Wall-mounted DUAL technology BUS sensor 180 °
882 33	1	IR remote control



488 47



488 23



882 33

OPTION

To maximise comfort a 4 scenarios control can be added.

Please refer to page 65 for more information (Centralized management)



- Vacancy sensing
- Dimming control fluorescent 1-10 V
- ON/OFF control LEDs
- Daylighting

CONTROL NEEDS

1. Turn lights manually ON and automatically OFF based on occupancy
2. Manual override with ON/OFF and dimming cap
3. Automatic dimming of lights according to daylight measurement

LIGHTING

Ceiling-mounted luminaires using T5, 1-10 V electronic ballasts
LED luminaires using 1-10 V electronic ballast

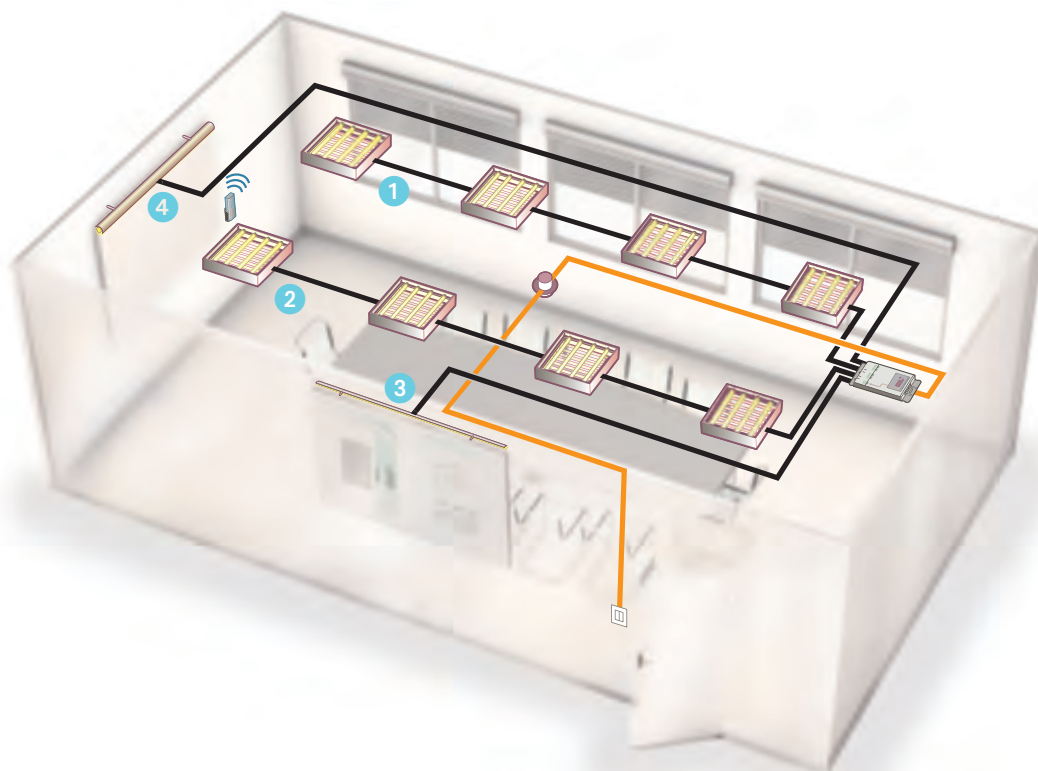
APPLICATION DESCRIPTION

Space use	Meetings, presentations (e.g. project team)
Dimensions	10 x 5 m = 50 m ²
Ceiling height	2.50 m
Windows	Along one wall providing view to exterior

SOLUTION

1. Ceiling-mounted DUAL technology BUS sensor
2. BUS/SCS room controller 4 outputs for 1-10 V ballasts
3. Remote control
4. BUS push-button

Vacancy sensing, dimming control fluorescent 1-10 V, ON/OFF control LEDs, daylighting



LIGHTING PLAN

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DESIGN SOLUTION DESCRIPTION

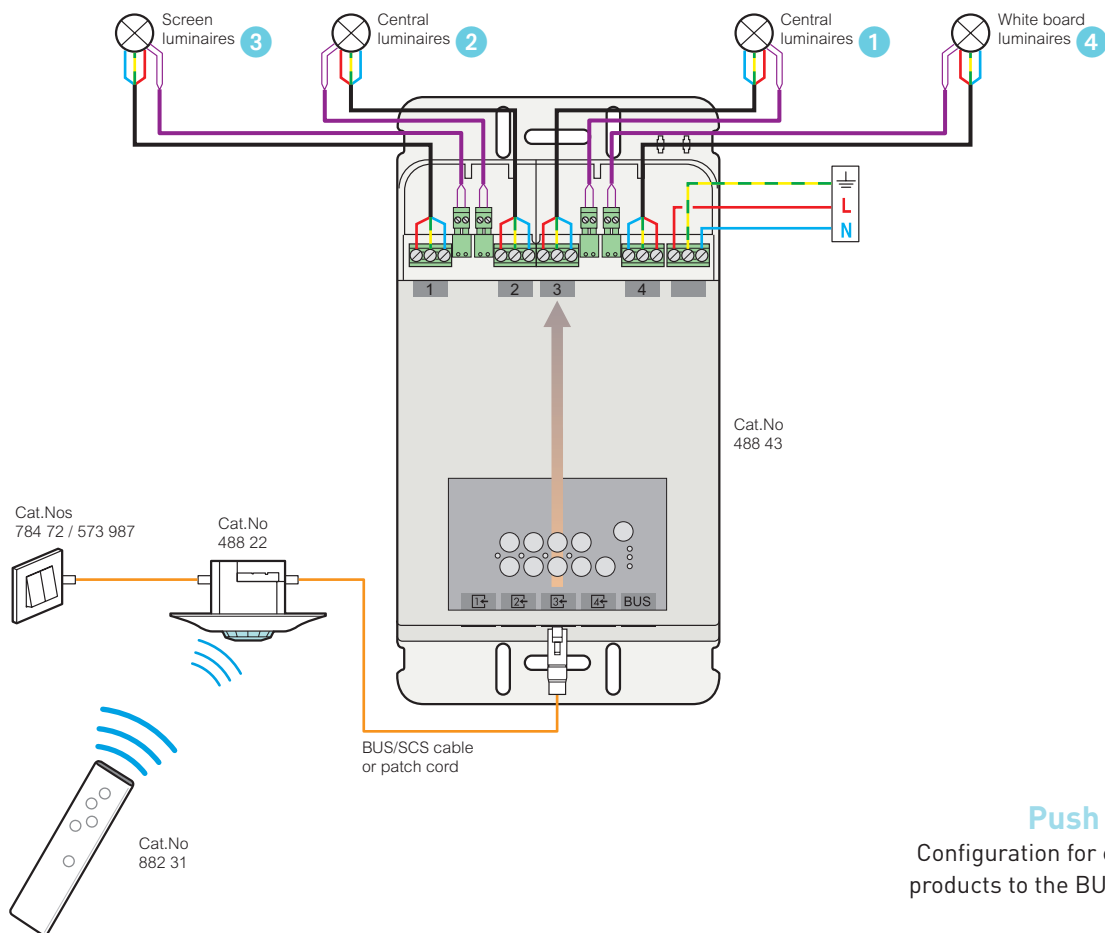
The BUS push-button Cat.No 784 72 (Mosaic) or Cat.No 573 987 (Arteor) is used to turn ON/OFF and dim manually the light circuit above the table (circuit 1 + 2).

The IR remote control Cat.No 882 31 is used to turn ON/OFF and dim manually the 2 light circuits.

The DUAL technology BUS sensor Cat.No 488 22 is mounted in the centre of the conference room for a full view. It turns all lights OFF when the room is not occupied. During occupied times the lights above the table (circuit 1) are automatically dimmed according to the daylight set point.

The BUS/SCS room controller Cat.No 488 43 is fixed on the cable tray in the false ceiling.

Its 4 dimmable outputs respectively control the 4 light circuits, screen luminaires, white board luminaires and central luminaires on the windows side and central luminaires on the door side.



Push n' learn
Configuration for connecting products to the BUS/SCS line

INSTALLATION AND WIRING DETAILS

INSTALLATION NOTES

1. Mount the BUS sensor Cat.No 488 22 in the centre of the room for a full view of the room. Mount the SCS push-button Cat.No 784 72 (Mosaic) or Cat.No 573 987 (Arteor) at the entrance to the room.
2. Connect the BUS sensor to the BUS/SCS room controller Cat.No 488 43. The connection between the BUS sensor Cat.No 488 22 and the BUS/SCS room controller Cat.No 488 23 can be made with BUS/SCS cable Cat.No 492 31/32/33 or RJ 45 patch cord. They are connected to the same input (No 3) as they control the same output (circuit 2). Connect the 4 circuits to the BUS/SCS room controller.
3. Configure the remote control Cat.No 882 31, the BUS sensor and the BUS push-button to the appropriate outputs of the BUS/SCS room controller.
Please refer to push & learn manual for more details.
4. The sensor is shipped with a factory pre-set time delay of 15 minutes, 500 lux and sensitivity at maximum. Please note that standard EN 15 193 recommends 500 lux for large conference rooms, use the mobile configurator Cat.No 882 30 to change sensor settings if needed (time, lux, sensitivity).

LARGE CONFERENCE ROOM

- Vacancy sensing
- Dimming control fluorescent 1-10 V
- ON/OFF control LEDs
- Daylighting

EQUIPMENT SCHEDULE LOCAL MANAGEMENT & CENTRALIZED MANAGEMENT

Cat.Nos	Quantity	Description
488 43	1	BUS/SCS dimming room controller 1-10 V, 4 outputs
488 22	1	Ceiling-mounted DUAL technology BUS sensor 360 °
784 72	1	BUS lighting control unit 2-way - Mosaic
573 987	1	BUS lighting control unit - Arteor
882 31	1	IR remote control



488 43



488 22



882 31

OPTION

To maximise comfort Cat.No 035 51 & 784 74 can be added.
This combination provides control of all lighting circuits and ensures control of different scenarios.

Please refer to page 65 for more information (Centralized management)



- Vacancy sensing
- Dimming control fluorescent 1-10 V
- ON/OFF control ECO halogen
- Automation control
- Scenarios
- Daylighting

CONTROL NEEDS

1. Manually turn lights ON and automatically turn lights OFF based on occupancy
2. Manual override with ON/OFF capability
3. 2 scenarios
4. Manually raise ride of the screen

LIGHTING

Ceiling-mounted luminaires using, T5, 1-10 V
ECO halogen luminaires

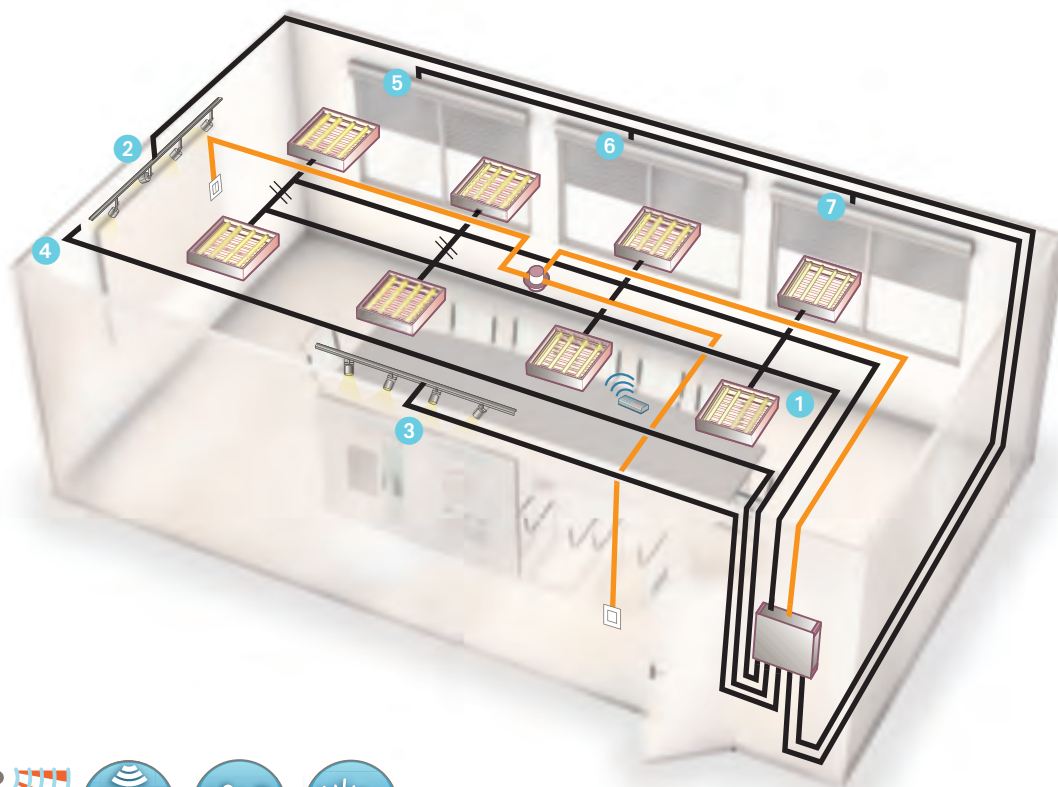
APPLICATION DESCRIPTION

Space use	Meetings, presentations (e.g. project team)
Dimensions	12 x 5 m = 60 m ²
Ceiling height	2.50 m
Windows	Along one wall providing view to exterior

SOLUTION

1. Ceiling-mounted DUAL technology BUS sensor
2. BUS lighting control 1-way push-button
3. BUS multifunction 2-way switch
4. BUS/SCS DIN dimming controller 4 outputs for 1-10 V ballasts
5. BUS/SCS DIN multi-application controller 2 outputs
6. Remote control

Vacancy sensing, dimming control fluorescent 1-10 V, ON/OFF control ECO halogen, automation control, scenarios, daylighting



LIGHTING PLAN

DESIGN SOLUTION DESCRIPTION

The BUS/SCS DIN dimming controller Cat.No 026 12 has 4 dimmable outputs. It controls the 4 lighting circuits, controls luminaires (Dim) + screen luminaires (ON/OFF) + white board luminaires (ON/OFF)

4 BUS/SCS DIN multi-application controllers Cat.No 038 42 control 3 blinds motors & the screen motor.

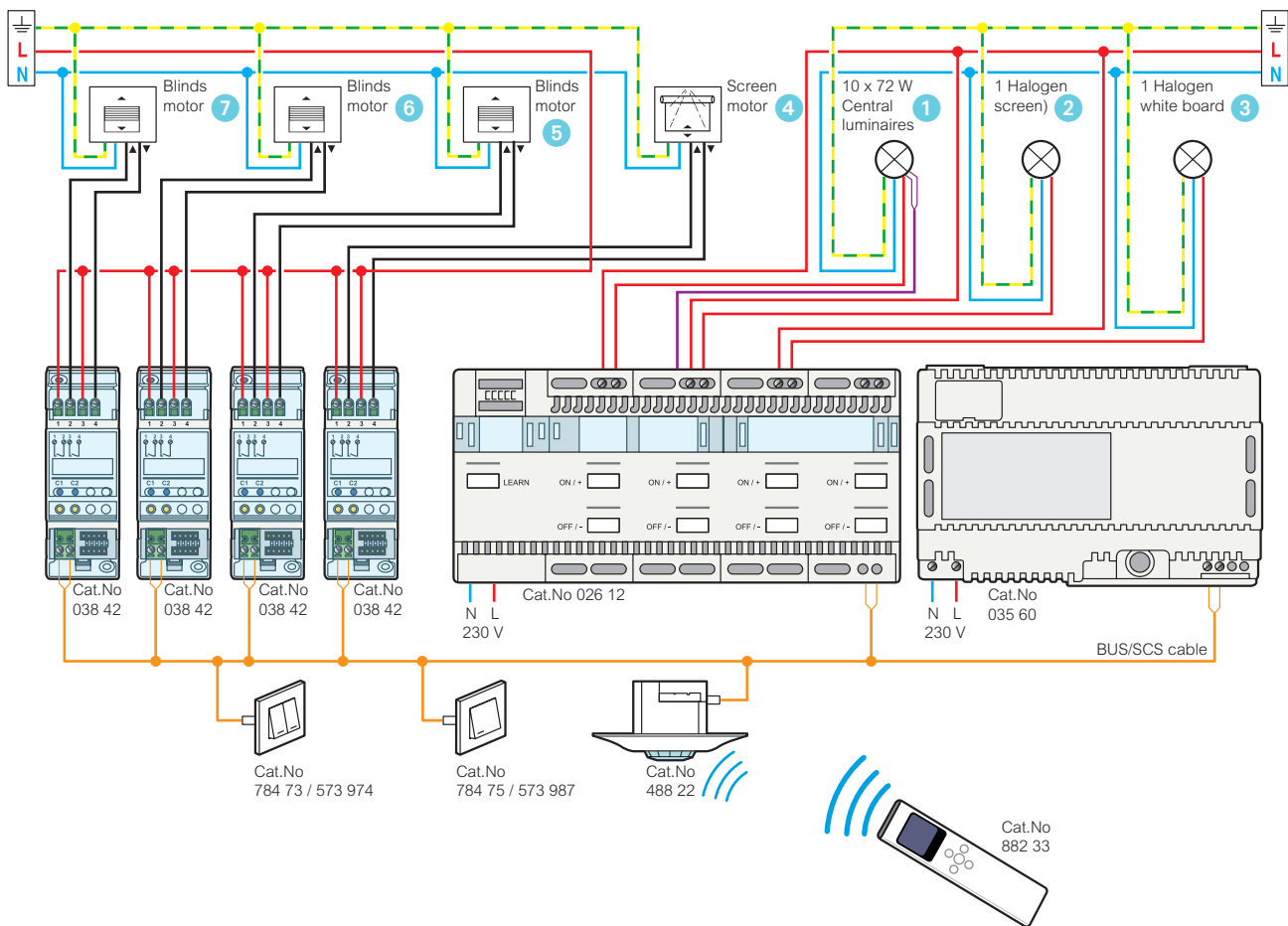
The BUS multifunction control Cat.No 784 73 (Mosaic) or Cat.No 573 974 (Arteor) has 2 directions. It controls (up/down/stop) the screen and the blind motors.

The BUS lighting control Cat.No 784 75 (Mosaic) or Cat.No 573 987 (Arteor) is used to turn ON/OFF and dim manually the light circuit above the table circuit

The remote control Cat.No 882 33 is used to:

- turn blinds up/down/stop.
- control 1 scenario ON/OFF (for example scenario on: video presentation: central lights are dimmed to 33%, screen is down, screen luminaires are OFF, blinds are half down) scenario OFF (screen is up, blinds are up, screen luminaires and central lights are dimmed automatically by the sensor according to available daylight).
- turn whiteboard lights ON/OFF.

The DUAL technology BUS sensor Cat.No 488 22 is mounted in the centre of the conference room for a full view. It turns all lights OFF when the room is not occupied. During occupied times the light above the table circuit ① is dimmed automatically according to daylight.



Configuration software suite
Configuration for connecting products to the BUS/SCS line

INSTALLATION AND WIRING DETAILS

INSTALLATION NOTES

1. Mount the BUS sensor Cat.No 488 22 in the centre of the room for a full view of the room. Mount the BUS push-button Cat.No 784 75 (Mosaic) or Cat.No 573 987 (Arteor) at the entrance of the room. Mount the BUS multifunction control Cat.No 784 73 (Mosaic) or Cat.No 573 974 (Arteor) between the screen and blinds.
2. Mount BUS/SCS DIN multi-application controllers Cat.No 038 42 + BUS/SCS DIN dimming controller Cat.No 026 12 + BUS/SCS DIN power supply Cat.No 035 60 in a cabinet.
3. Connect all these devices together with the BUS/SCS cable Cat.No 492 31/32/33.
4. Configure the sensors, the controls and the controller using Legrand Lighting Management suite - pack 1 Cat.No 488 80.
5. The sensor is shipped with a factory pre-set time delay of 15 minutes, 500 lux and sensitivity at maximum. Please note that standard EN 15 193 recommends 500 lux for large conference rooms, use the mobile configurator Cat.No 882 30 to change sensor settings if needed (time, lux, sensitivity).

LARGE CONFERENCE ROOM

- Vacancy sensing
- Dimming control fluorescent 1-10 V
- ON/OFF control ECO halogen
- Automation control
- Scenarios
- Daylighting

EQUIPMENT SCHEDULE LOCAL MANAGEMENT & CENTRALIZED MANAGEMENT

Cat.Nos	Quantity	Description
038 42	4	BUS/SCS DIN multi-application controller 2 outputs
026 12	1	BUS/SCS DIN dimming controller 4 outputs 1-10 V
488 22	1	Ceiling-mounted DUAL technology BUS sensor 360 °
784 75	1	BUS lighting control unit 1-way - Mosaic
573 987	1	BUS lighting control unit - Arteor
035 60 ^(*)	1	BUS/SCS DIN power supply 27 V 1200 mA
784 73	1	BUS multifunction control unit 2-way - Mosaic
573 974	1	BUS multifunction control unit - Arteor
882 33	1	IR remote control



038 42



026 12



488 22

OPTION

To maximise comfort Cat.No 035 51 & 784 74 can be added.
This combination provides control of all lighting circuits and ensures control of different scenarios.

Please refer to page 65 for more information (Centralized management)

(*) This product can be shared.



- Vacancy sensing
- Dimming control fluorescent 1-10 V
- Daylighting

CONTROL NEEDS

Manual lighting control with automatic OFF based on occupancy

LIGHTING

Ceiling-mounted fluorescent luminaires with electronic ballast

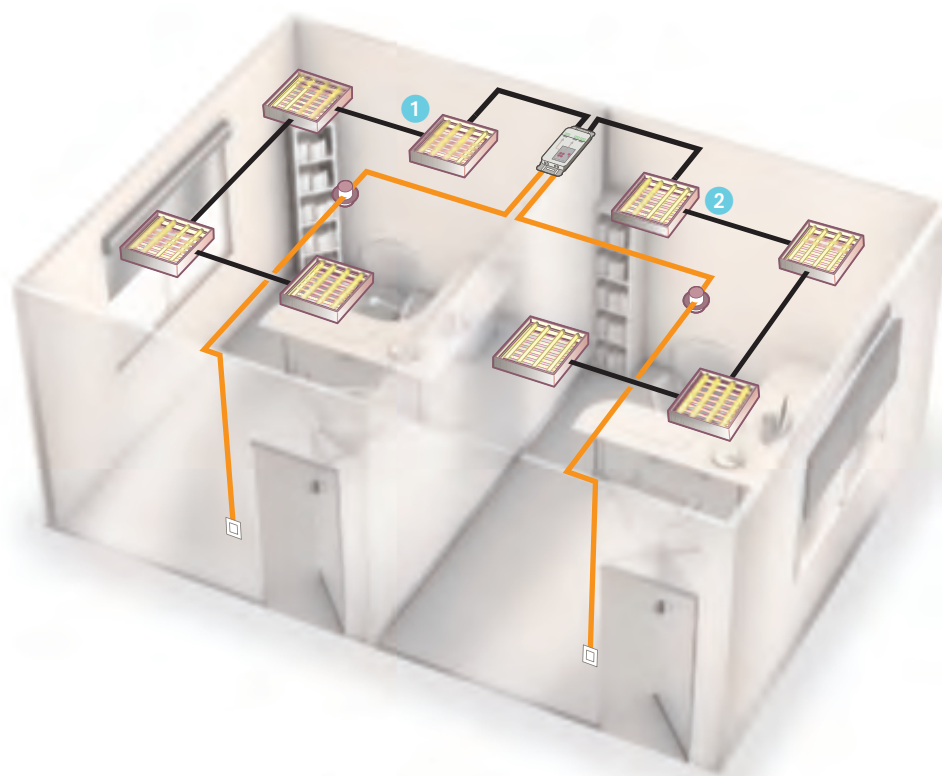
APPLICATION DESCRIPTION

Space use	Open office activities such as reading, computer work
Dimensions	(3 x 5 m) x 2
Ceiling height	2.50 m
Windows	Windows along one wall providing view to exterior

SOLUTION

1. Ceiling-mounted PIR technology sensor
2. BUS/SCS room controller 2 outputs for 1-10 V ballasts
3. BUS lighting control 1-way push-button

Vacancy sensing, dimming control fluorescent 1-10 V, daylighting

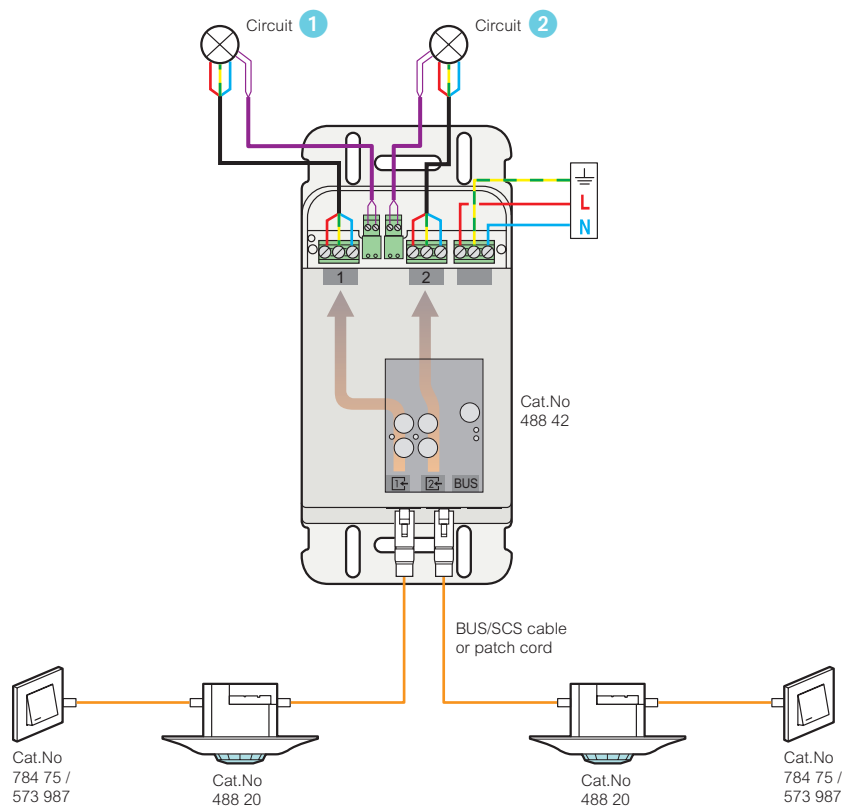


LIGHTING PLAN

22

DESIGN SOLUTION DESCRIPTION

The BUS push-button Cat.No 784 75 (Mosaic) or Cat.No 573 987 (Arteor) controls and dims lights manually, in each office. The PIR BUS sensor Cat.No 488 20 is mounted at the centre of each office for a full view. It turns lights OFF when the office is not occupied. During occupied times lights are dimmed according to available daylight. The BUS/SCS room controller Cat.No 488 42 controls 2 circuits.



Plug n' go
Configuration for connecting products to the BUS/SCS line

INSTALLATION AND WIRING DETAILS

Private offices: vacancy sensing.


INSTALLATION NOTES

1. Mount the BUS sensor Cat.No 488 20 in the centre of the room for a full view of the room. Mount the BUS push-button Cat.No 784 75 (Mosaic) or Cat.No 573 987 (Arteor) at the entrance of each office.
2. Connect the BUS sensor and the BUS push-button of office 1 to the BUS/SCS room controller Cat.No 488 42. The connection between the BUS sensor, BUS push-button and the BUS/SCS room controller can be made with BUS/SCS cable Cat.No 492/31/32/33 or RJ 45 patch cord. Connect them to input 1 and connect the light circuit 1 to output 1. Do the same for each office.
3. The sensor is shipped with a factory pre-set time delay of 15 minutes, 500 lux and sensitivity at maximum. Please note that standard EN 15 193 recommends 500 lux for private offices, use the mobile configurator Cat.No 882 30 to change sensor settings if needed (time, lux, sensitivity).


- Vacancy sensing
- Dimming control fluorescent 1-10 V
- Daylighting

EQUIPMENT SCHEDULE
LOCAL MANAGEMENT & CENTRALIZED MANAGEMENT


Cat.Nos	Quantity	Description
488 42	1	BUS/SCS room controller, 2 outputs 1-10 V
488 20	2	Ceiling-mounted PIR BUS sensor 360 °
784 75	2	BUS lighting control unit 1-way - Mosaic
573 987	2	BUS lighting control unit - Arteor



488 42



488 20



784 75

Please refer to page 65 for more information (Centralized management)



- Vacancy sensing
- Dimming control fluorescent 1-10 V
- Automation control
- Daylighting

CONTROL NEEDS

1. Automatic fan ON based on occupancy
2. Manual lights ON
3. Automatic dimming luminaire above desk
4. Manual control of blinds
5. Automatic OFF for lights and fan

LIGHTING

8 ceiling luminaires using T5 lamps and electronic ballast lamp.
Electronic dimming ballasts (1 – 10V)

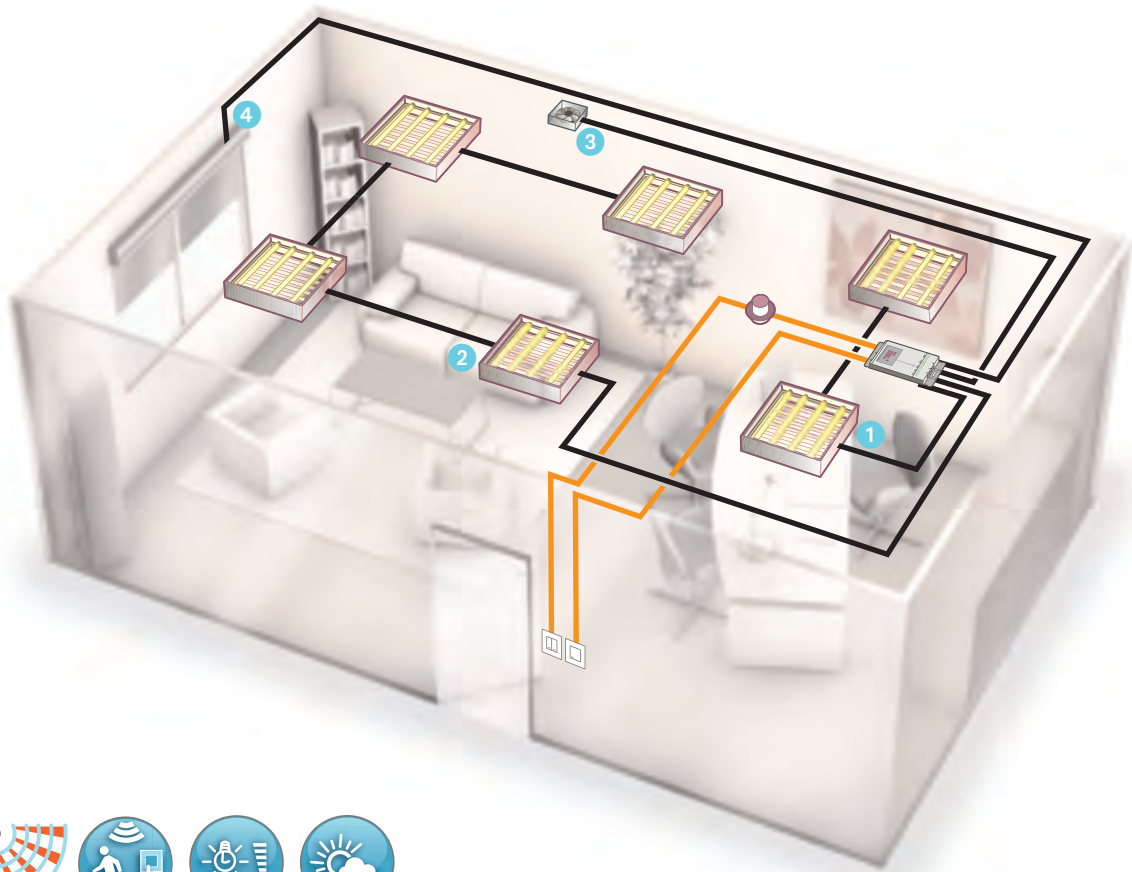
APPLICATION DESCRIPTION

Space use	Office activities such as reading, computer work
Dimensions	7 x 5 m
Ceiling height	2.50 m
Windows	View windows along one wall providing view to exterior with horizontal blinds provided

SOLUTION

1. DUAL technology BUS sensor
2. BUS/SCS room controller for fan control and dimming
3. BUS push-buttons

Vacancy sensing, dimming control fluorescent 1-10 V, automation control, daylighting

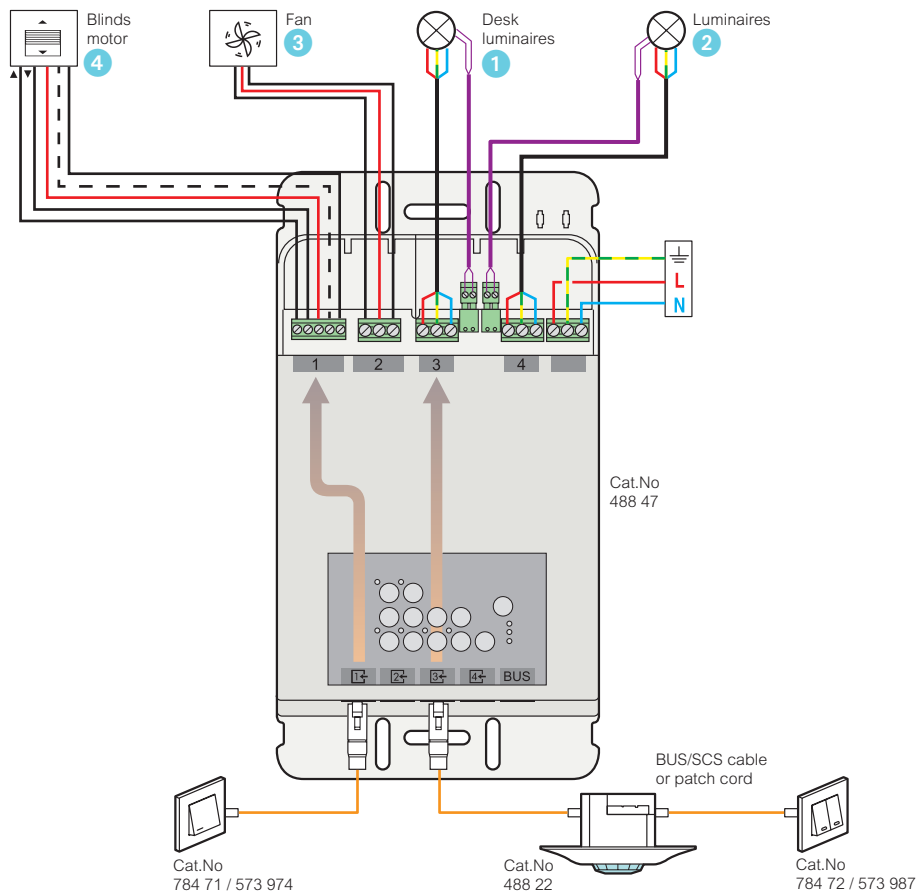


LIGHTING PLAN

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DESIGN SOLUTION DESCRIPTION

It is used to automatically turn the light and fan system OFF when the room is not occupied. It turns the fan ON upon occupancy. The DUAL SCS sensor Cat.No 488 22 measures available daylight and dims desk lights accordingly. The BUS push-button Cat.No 784 72 (Mosaic) or Cat.No 573 987 (Arteor) controls manually and dims light circuits 1 & 2. The BUS multifunction control Cat.No 784 71 (Mosaic) or Cat.No 573 974 (Arteor) is used to control blinds.



Plug n' go
Configuration for connecting products to the BUS/SCS line

INSTALLATION AND WIRING DETAILS


INSTALLATION NOTES

1. Mount the BUS sensor Cat.No 488 22 at the centre of the room for a full view of the room. Mount the BUS push-button Cat.No 784 72 (Mosaic) or Cat.No 573 987 (Arteor) and the BUS multifunction control Cat.No 784 71 (Mosaic) or Cat.No 573 974 (Arteor) at the entrance of the room.
2. Connect the BUS sensor and the BUS push-button Cat.No 784 72 / 573 987 to the BUS/SCS room controller Cat.No 488 47 with the BUS/SCS cable Cat.No 492 31/32/33 or RJ 45 patch cord. They are connected to the same input (No 1). Connect the BUS multifunction control to the input (No 3). Connect the 4 power circuits to the BUS/SCS room controller.
3. The sensor is shipped with a factory pre-set time delay of 15 minutes, 500 lux and sensitivity at maximum. Please note that standard EN 15 193 recommends 500 lux for large private offices, use the mobile configurator Cat.No 882 30 to change sensor settings if needed (time, lux, sensitivity).


- Vacancy sensing
- Dimming control fluorescent 1-10 V
- Automation control
- Daylighting

EQUIPMENT SCHEDULE
LOCAL MANAGEMENT & CENTRALIZED MANAGEMENT


Cat.Nos	Quantity	Description
488 22	1	Ceiling-mounted DUAL technology BUS sensor 360 °
488 47	1	BUS/SCS room controller 2 outputs ON/OFF or 1-10 V, 2 outputs for blinds and fans
784 72	1	BUS lighting control unit 2-way - Mosaic
573 987	1	BUS lighting control unit - Arteor
784 71	1	BUS multifunction control unit 1-way - Mosaic
573 974	1	BUS multifunction control unit - Arteor



488 22



488 47



784 72

Please refer to page 65 for more information (Centralized management)



- Occupancy sensing
- ON/OFF control fluorescent
- Automation control
- Daylighting

CONTROL NEEDS

1. Manually turn lights ON and automatically OFF based on occupancy
2. Manual control and override
3. Occupancy-based of fan system control

LIGHTING

Compact fluorescent down lightings

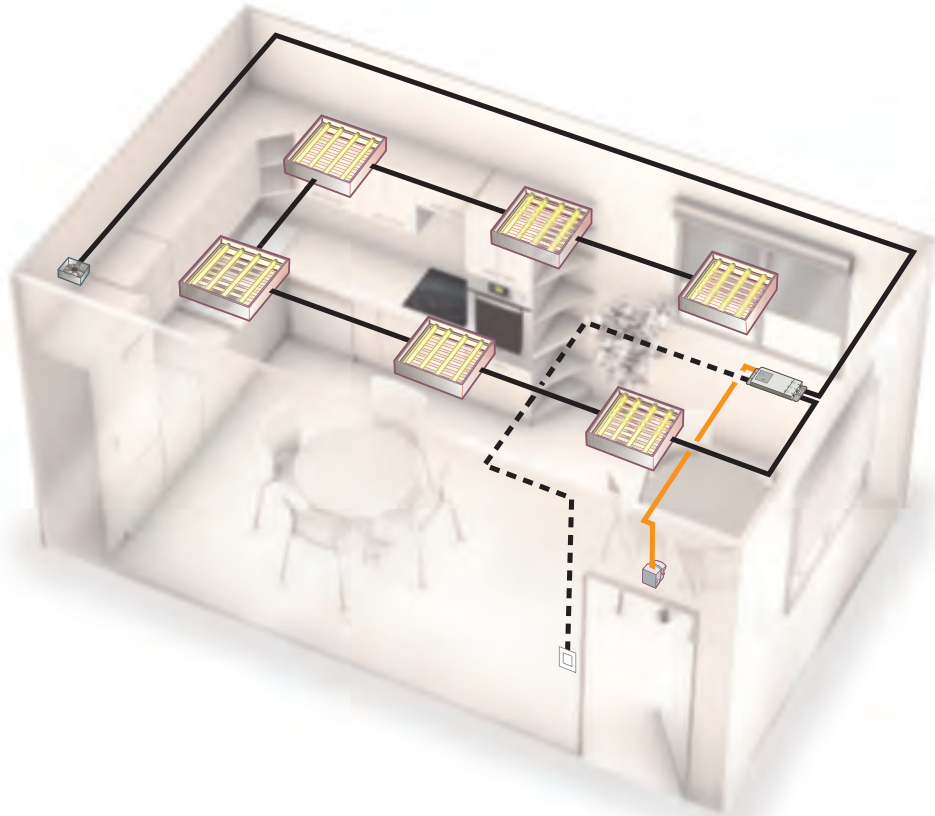
APPLICATION DESCRIPTION

Space use	Meal preparation, eating, leisure activities
Dimensions	5 x 7 m
Ceiling height	2.50 m
Window	None
Window blinds	None

SOLUTION

1. Wall-mounted PIR sensor
2. Room controller 2 outputs
3. Push-button

Occupancy sensing, ON/OFF control fluorescent, automation control, daylighting

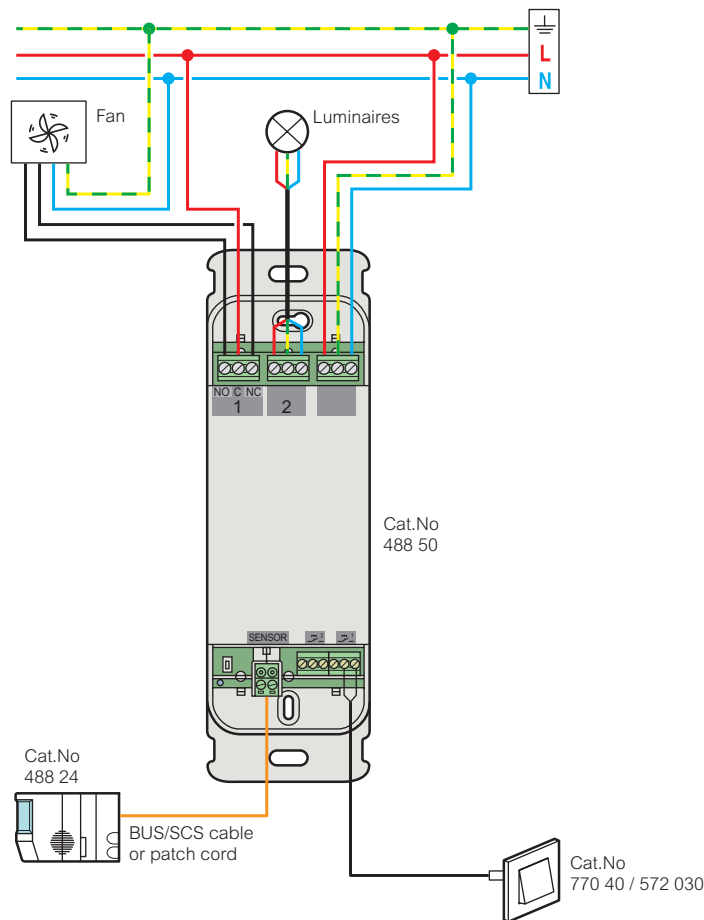


LIGHTING PLAN

30

DESIGN SOLUTION DESCRIPTION

The PIR corner mount BUS sensor Cat.No 488 24 is used to automatically turn the lights & fan ON upon occupancy. Lights are turned OFF in response to daylight. When the room is not occupied lights and fan are automatically turned OFF. The sensor is mounted in the corner of the room, along the same wall as the door, so that detection outside the door does not occur. Overriding light is possible using the push-button Cat.No 770 40 (Mosaic) or Cat.No 572 030 / 573 050 (Arteor) located near the door. The room controller Cat.No 488 50 is fixed on the cable tray in the false ceiling.



Plug n' go
Configuration for connecting products to the BUS/SCS line

INSTALLATION AND WIRING DETAILS

INSTALLATION NOTES

1. Mount the BUS sensor Cat.No 488 24 in the corner of the room for a full view of the room. Mount the push-button Cat.No 770 40 (Mosaic) or Cat.No 572 030 / 573 050 (Arteor) at the entrance of the room.
2. Connect the BUS sensor to the room controller Cat.No 488 50 with the BUS/SCS cable Cat.No 492 31/32/33 or RJ 45 patch cord. Connect the push-button to the auxiliary input. Connect the 2 circuits (fan & lights) to the room controller. Position the switch on the controller Cat.No 488 50 on position "☀️". The daylight function will control the light circuit only. Please refer to instruction sheets for more details.
3. The sensor is shipped with a factory pre-set time delay of 15 minutes, 300 lux and sensitivity at maximum. Please note that standard EN 15 193 recommends 500 lux for kitchens, use the mobile configurator Cat.No 882 30 to change sensor settings if needed (time, lux, sensitivity).

KITCHEN

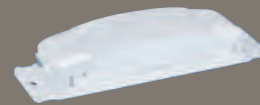
- Occupancy sensing
- ON/OFF control fluorescent
- Automation control
- Daylighting

EQUIPMENT SCHEDULE LOCAL MANAGEMENT

1st option		
Cat.Nos	Quantity	Description
488 24	1	Wall-mounted PIR BUS sensor 180 °
488 50	1	Room controller 2 outputs 16 A
770 40	1	Push-button - Mosaic
572 030	1	Push-button square version - Arteor
573 050	1	Push-button round version - Arteor



488 24



488 50



770 40

EQUIPMENT SCHEDULE CENTRALIZED MANAGEMENT

2nd option		
Cat.Nos	Quantity	Description
488 24	1	Wall-mounted PIR BUS sensor 180 °
488 47	1	BUS/SCS room controller 2 outputs ON/OFF or 1-10 V + 2 outputs for blinds and fans
784 75	1	BUS lighting control 1-way - Mosaic
573 987	1	BUS lighting control unit - Arteor



488 47



784 75

Please refer to page 65 for more information (Centralized management)



- Vacancy sensing
- Dimming control DALI
- Daylighting

CONTROL NEEDS

1. Manual ON and Automatic OFF based on occupancy
2. Automatic dimming

LIGHTING

Ceiling mounted indirect luminaires using fluorescent lamp and DALI ballasts

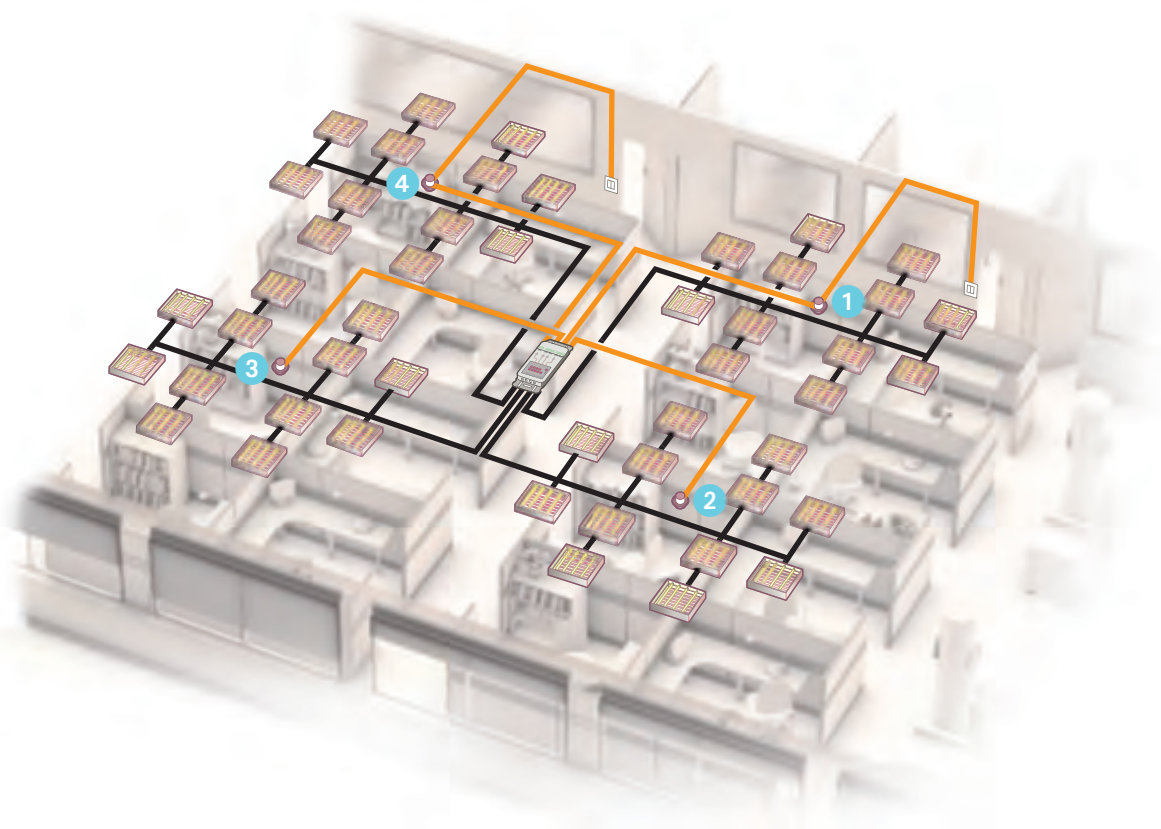
APPLICATION DESCRIPTION

Space use	Open office activities including administration, clerical, filing, copy areas, finance, and engineering sales
Dimensions	Approx. 300 m ²
Ceiling height	2.50 m
Cubicle dimensions	2.50 m x 2.50 m x 2.50 m
Windows	View windows along facade with horizontal blinds provided

SOLUTION

1. DUAL technology BUS sensors
2. BUS/SCS dimming room controller 4 outputs for DALI protocol
3. BUS push-buttons

Vacancy sensing, dimming control DALI, daylighting



LIGHTING PLAN

34

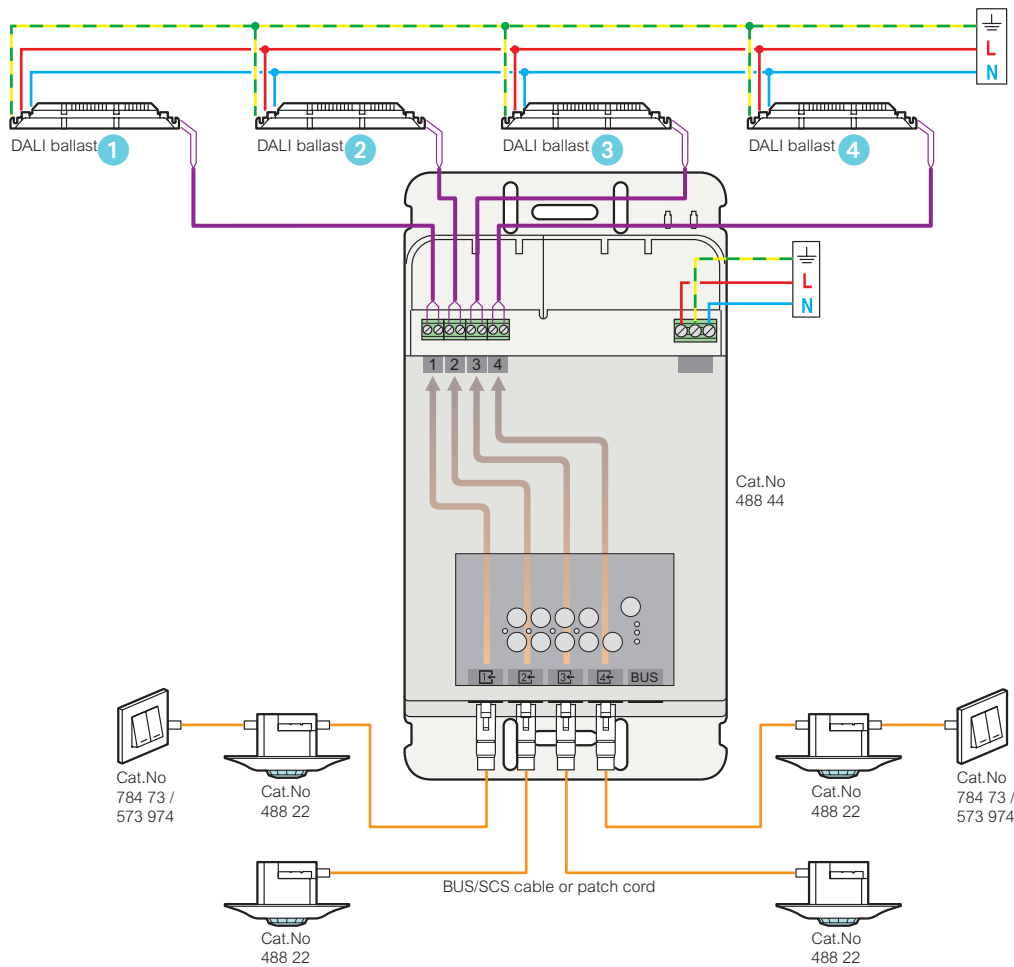
DESIGN SOLUTION DESCRIPTION

Lights are manually turned ON by pressing the BUS multifunctional control Cat.No 784 73 (Mosaic) or Cat.No 573 974 (Arteor) located at the entrance of each zone. The DUAL technology BUS sensor Cat.No 488 22 covers 90 m² and assures adequate coverage (through partitions). Each zone is divided in 2 parts: close to the windows and further away from the windows. Each part is controlled by 2 DUAL technology BUS sensor Cat.No 488 22.

While the area is occupied the BUS sensor will hold the lighting ON and will dim automatically the associated circuit. After the area is vacated and after the sensor's time delay expires, the BUS sensor will turn lights OFF.

Manual override is possible using the BUS multifunctional control (automatic dimming is disabled).

The BUS/SCS room controller Cat.No 488 44 is fixed on the cable tray in the false ceiling.



Plug n' go
Configuration for connecting products to the BUS/SCS line

INSTALLATION AND WIRING DETAILS

INSTALLATION NOTES

1. Mount the BUS sensor Cat.No 488 22 on a rigid, vibration-free surface. Mount the BUS multifunctional control Cat.No 784 73 (Mosaic) or Cat.No 573 974 (Arteor) at the entrance of the room.
2. Connect the BUS/SCS room controller Cat.No 488 44 to the BUS sensor and the BUS multifunctional control with the BUS/SCS cable Cat.No 492 31/32/33 or RJ 45 patch cord. Input 1 controls output 1.
3. The sensor is shipped with a factory pre-set time delay of 15 minutes, 500 lux and sensitivity at maximum. Please note that standard EN 15 193 recommends 500 lux for open offices, use the mobile configurator Cat.No 882 30 to change sensor settings if needed (time, lux, sensitivity).

- Vacancy sensing
- Dimming control DALI
- Daylighting

EQUIPMENT SCHEDULE LOCAL MANAGEMENT & CENTRALIZED MANAGEMENT

Cat.Nos	Quantity	Description
488 22	4	Ceiling-mounted DUAL technology BUS sensor 360 °
488 44	1	BUS/SCS dimming room controller 4 outputs for DALI protocol
784 73	2	BUS multifunction control unit 2-way - Mosaic
573 974	2	BUS multifunction control unit - Arteor



488 22



488 44



784 73

OPTION

For maximum comfort you can add the daylight photocell Cat. No 488 28 placed it next to windows it will measure available daylight and will give this information to each sensor (open loop). Each sensor is commissioned to act according to this measurement. See photocell technical data sheet for more details.



Please refer to page 65 for more information (Centralized management)



- Time scheduling
- Dimming control DALI
- Daylighting

CONTROL NEEDS

1. Automatically turn pendant lights ON and OFF based on occupancy after hours and on week-ends
2. Time scheduling, daylighting, manual switching

LIGHTING

Pendant mounted indirect/direct luminaires using T5 lamps, with DALI dimming ballasts.

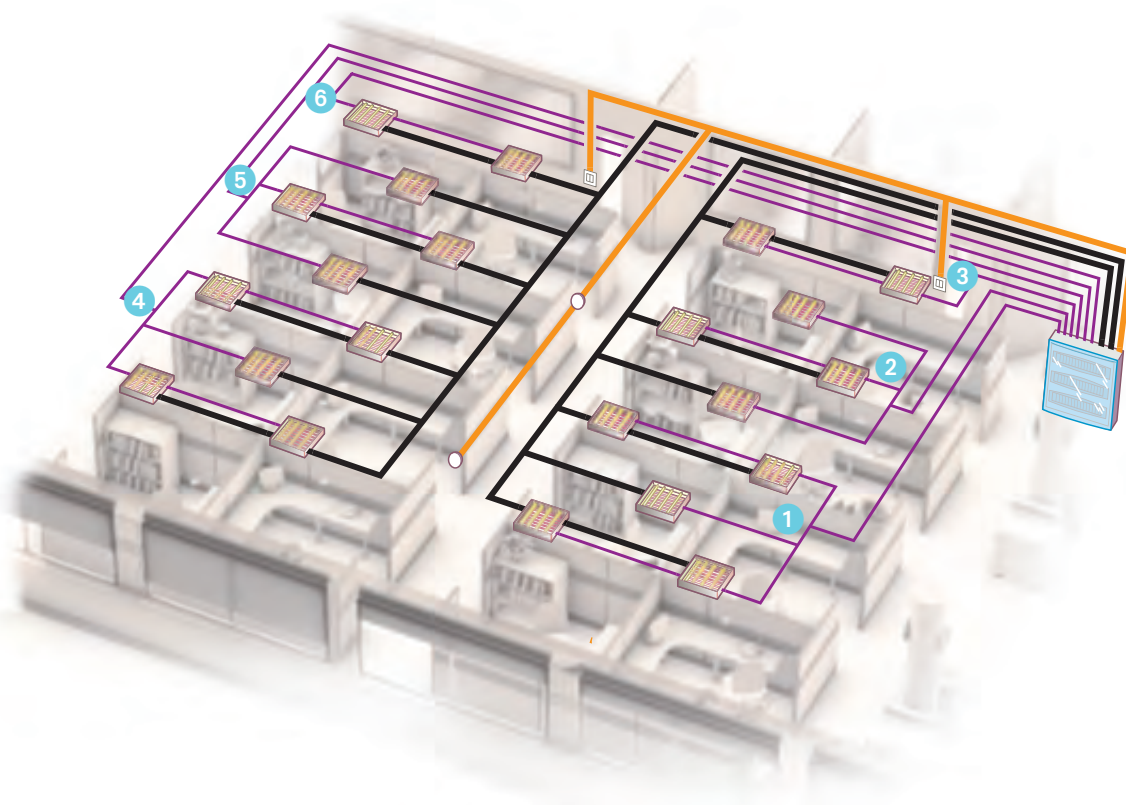
APPLICATION DESCRIPTION

Space use	Open office activities in including administration, clerical, filing, copy areas, finance, and engineering sales
Dimensions	approx. 600 m ²
Ceiling height	2.50 m
Windows	View windows along south facade with horizontal blinds provided
Window blinds	None

SOLUTION

1. BUS/SCS DIN dimming controller 8 outputs for DALI protocol
2. Zone management unit
3. Power supplies
4. BUS push-buttons
5. Lighting measurement cells

Time scheduling, dimming control DALI, daylighting

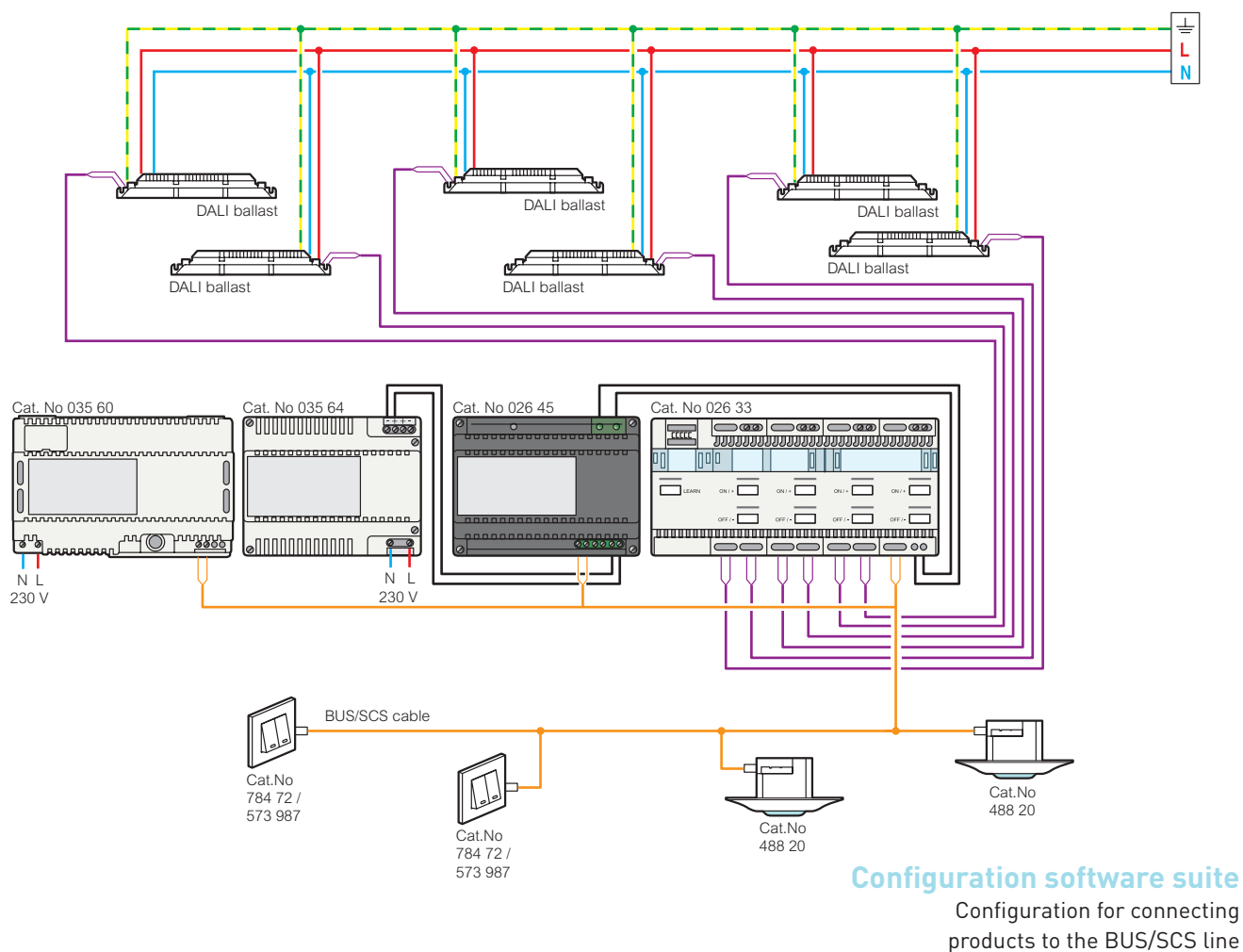


LIGHTING PLAN

38

DESIGN SOLUTION DESCRIPTION

Lighting is controlled based on time schedules, manual control and daylighting. The zone management unit Cat.No 026 45 is used for automatically dimming 6 lighting zones based upon available daylight. The 2 sensors Cat.No 488 20 are configured as daylight sensors only (detection function is disabled). They read the daylight level and provide the information to zone management unit Cat.No 026 45 and to DALI controller Cat.No 026 33. 3 lighting zones are raised or lowered accordingly to daylight level available in each zone (zone A = 1 + 4, zone B = 2 + 5, zone C = 3 + 6) and provide this information to zone management unit Cat.No 026 45 and to DIN DALI controller Cat.No 026 33. The light level of luminaires is raised or lowered accordingly. After hours control is done through BUS push-buttons Cat.Nos 784 72 (Mosaic) or Cat.Nos 573 987 (Arteor). Lights are turned ON manually and remain ON for 30 minutes.



INSTALLATION AND WIRING DETAILS

INSTALLATION NOTES

1. Mount the lighting measurement cells Cat.No 488 20 on the ceiling.
2. Mount the BUS push-buttons Cat.No 784 72 (Mosaic) or Cat.No 573 987 (Arteor) at the entrance of each zone.
3. Mount the BUS/SCS DIN power supplies Cat.Nos 035 60 & 035 64 + zone management unit Cat.No 026 45 + DIN DALI controller 8 outputs Cat.No 026 33 on a DIN rail.
4. Connect zone management unit + DIN DALI controller + BUS push-buttons + lighting measurement cell with BUS/SCS cable Cat.Nos 492 31/32/33.
5. Connect DALI ballast to DIN controller Cat.No 026 33 outputs.
6. Use software pack Cat.No 488 80 with the zone management unit Cat.No 026 45 to commission the lighting measurement cell, the DIN DALI controller, the BUS push-buttons. Please refer to Cat.No 488 80 instruction sheets for more details.
7. Use the software of zone management unit Cat.No 026 45 to commission automatic dimming conditions and to do the scheduling.

- Time scheduling
- Dimming control DALI
- Daylighting (open loop)

EQUIPMENT SCHEDULE LOCAL MANAGEMENT & CENTRALIZED MANAGEMENT

Cat.Nos	Quantity	Description
488 20	2	Lighting measurement cell
026 33	1	BUS/SCS DIN dimming controller 8 outputs for DALI protocol
784 72	2	BUS lighting control unit 2-way - Mosaic
573 987	2	BUS lighting control unit - Arteur
035 60 ^(*)	1	BUS/SCS DIN power supply 27 V 1200 mA
035 64 ^(*)	1	BUS/SCS DIN power supply for Cat.No 026 45
026 45 ^(*)	1	Zone management unit



488 20



784 72



026 45

Please refer to page 65 for more information (Centralized management)

(*) This product can be shared.



- Vacancy sensing
- ON/OFF control fluorescent

CONTROL NEEDS

Vacancy based control of lights

LIGHTING

Direct fluorescent luminaires

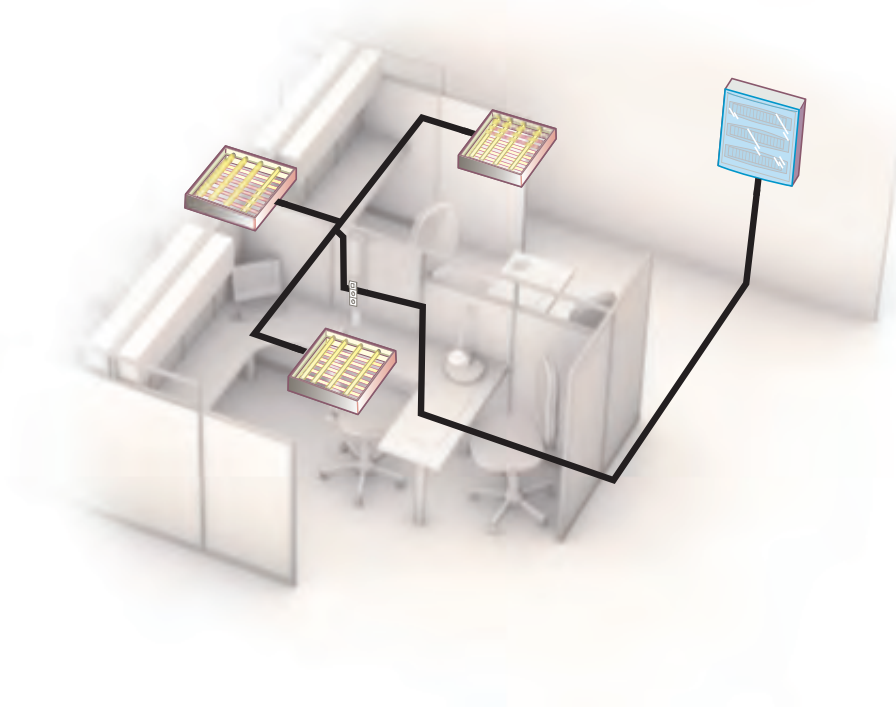
APPLICATION DESCRIPTION

Space use	Office activities such as reading, writing, computer work
Dimensions	(2.50 x 2.50 m) x 4
Ceiling height	2.50m

SOLUTION

1. DUAL technology automatic sensor

Vacancy sensing, ON/OFF control fluorescent



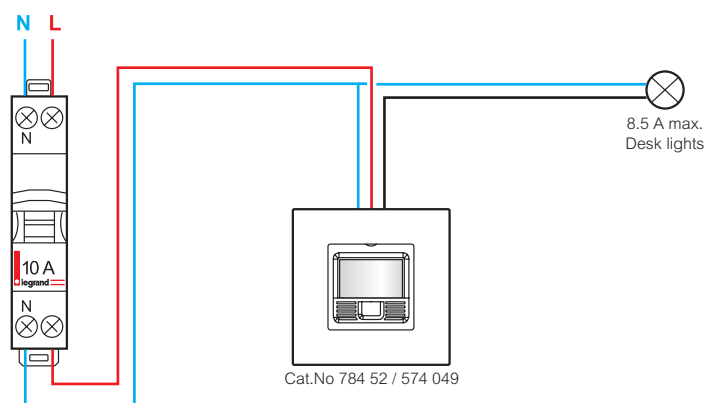
LIGHTING PLAN

42

DESIGN SOLUTION DESCRIPTION

Ambient lighting is provided by ceiling mounted luminaires (as in an OPEN OFFICE p. 38).

Here tasks/desk lights are controlled by an automatic switch located in a column. Desk lights are manually turned ON using the push-button included in the automatic switch. When the desk is not occupied, desk lights are automatically turned OFF.



WIRING DETAILS

INSTALLATION NOTES

1. Mount the automatic switch Cat.No 784 52 in the column to have a full view of the desk.
 2. The sensor is shipped with pre-set time delay of 15 minutes, 300 lux and sensitivity at maximum.
- Please note that standard EN 15 193 recommends 500 lux for workstation, use the mobile configurator Cat.No 882 30 to change sensor settings if needed (time, lux, sensitivity).

CUBICLE WORKSTATION

- Vacancy sensing
- ON/OFF control fluorescent

EQUIPMENT SCHEDULE LOCAL MANAGEMENT

1st option		
Cat.Nos	Quantity	Description
784 52	1	Automatic sensor DUAL technology s 3-wire, 1000 W - Mosaic
574 049	1	Automatic sensor DUAL technology 3-wire, 1000 W - Arteur



784 52

EQUIPMENT SCHEDULE CENTRALIZED MANAGEMENT

2nd option		
Cat.Nos	Quantity	Description
026 33 ^(*)	1	BUS/SCS DIN dimming controller 8 outputs for DALI protocol
784 86	1	BUS automatic DUAL technology switch - Mosaic
574 048	1	BUS automatic DUAL technology switch - Arteur



026 33



784 86

Please refer to page 65 for more information (Centralized management)

(*) Use 1 output of Open Office (p. 38) DIN controller.



- Occupancy sensing
- ON/OFF control fluorescent
- Secured lighting circuit

CONTROL NEEDS

1. Automatically turn lights ON and OFF based on occupancy

LIGHTING

Compact fluorescent down lightings

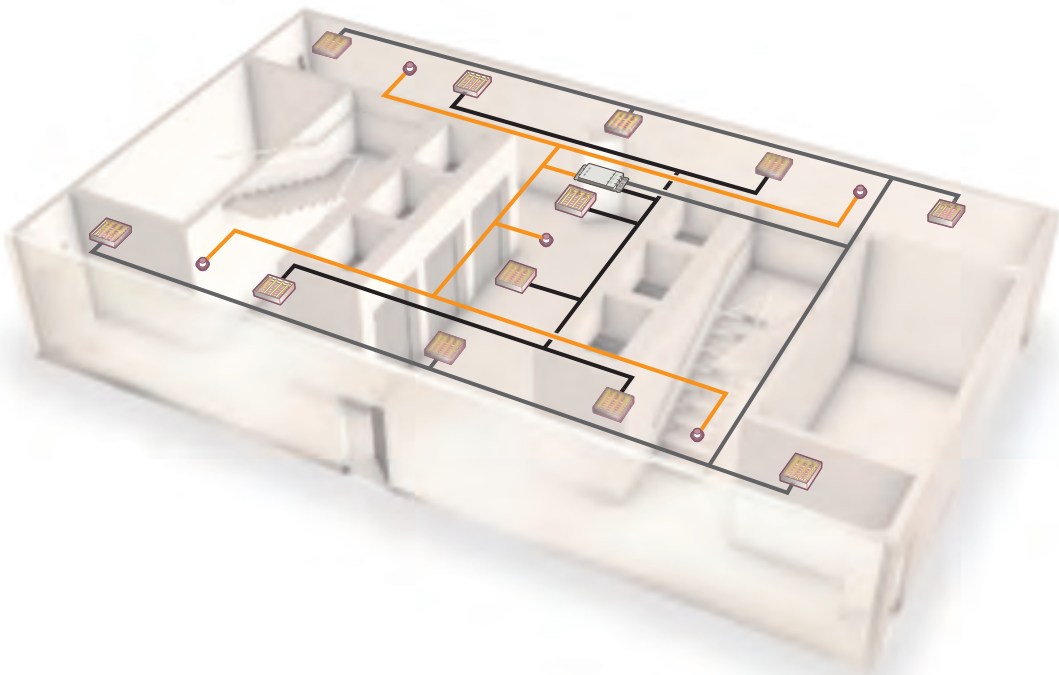
APPLICATION DESCRIPTION

Space use	General circulation
Corridor dimensions	30 x 2 m
Elevator/Lobby dimension	10 x 4 m
Ceiling height	2.50 m
Window	None

SOLUTION

1. Ceiling-mounted ultrasonic sensors
2. Room controller with 2 outputs

Occupancy sensing, ON/OFF control fluorescent, secured lighting circuit



LIGHTING PLAN

46

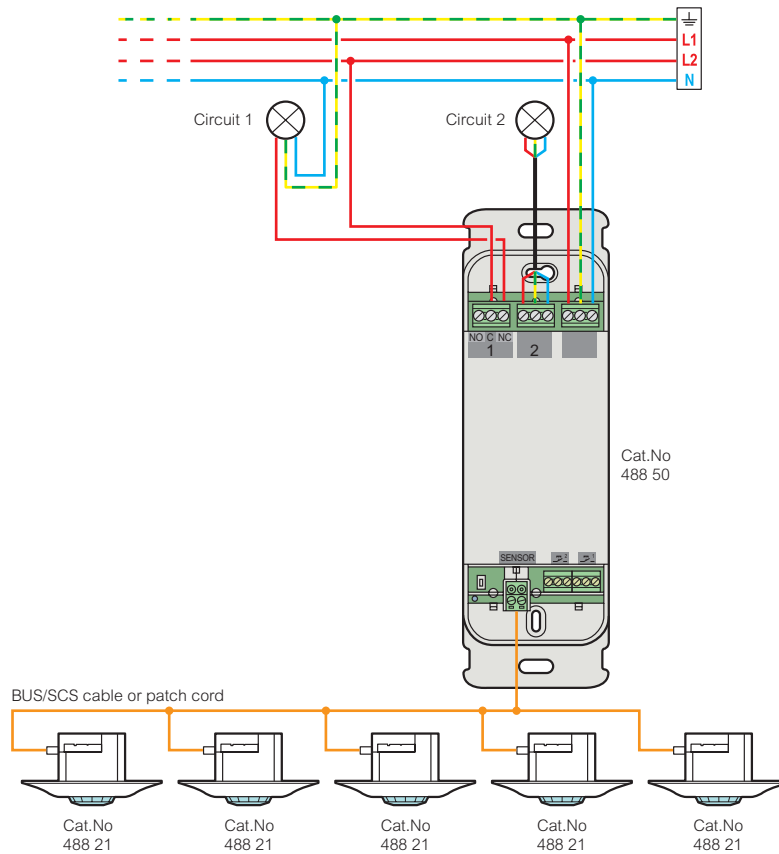
DESIGN SOLUTION DESCRIPTION

Lighting in the corridor and elevator lobby is automatically turned ON and OFF based on occupancy using the US ceiling mount BUS sensor Cat.No 488 21, which has a coverage pattern that is designed specifically for angular corridors (ultrasonic).

Two different circuits power the controller for security reasons.

2 power circuits are connected to the room controller Cat.No 488 50. In the event of ordinary power loss on 1 circuit, 1 light circuit (out of 2) will thus remain ON.

If no presence is detected within 3 minutes after the initial detection, the sensor automatically switches OFF the light after the 3 minutes have elapsed.



Plug n' go
Configuration for connecting products to the BUS/SCS line

INSTALLATION AND WIRING DETAILS


INSTALLATION NOTES

1. Mount the BUS sensors Cat.Nos 488 21 on a rigid vibration-free surface all along the corridor, (12 metres distance between sensors).
2. Mount the room controller Cat.No 488 50 in the false ceiling. The connection between the BUS sensors and the room controller 2 outputs can be made with BUS/SCS cable Cat.No 492 31/32/33 or RJ 45 patch cord. Position the switch of the controller on position "⊗". The daylight function will control the 2 lighting circuits. Please refer to instruction sheets for more details.
3. The sensors are shipped with a factory pre-set time delay of 15 minutes, 500 lux and sensitivity at maximum. Please note that standard EN 15 193 recommends 100 lux for hallways/elevators, use the mobile configurator Cat.No 882 30 to change sensors settings if needed (time, lux, sensitivity).


- Occupancy sensing
- ON/OFF control fluorescent
- 2 separated lighting circuit

**EQUIPMENT SCHEDULE
LOCAL MANAGEMENT**

1st option		
Cat.Nos	Quantity	Description
488 21	5	Ceiling-mounted ultrasonic BUS sensor 360 °
488 50	1	Room controller 2 outputs 16 A




488 21




488 50

**EQUIPMENT SCHEDULE
CENTRALIZED MANAGEMENT**

2nd option		
Cat.Nos	Quantity	Description
488 21	5	Ceiling-mounted ultrasonic BUS sensor 360 °
026 00	2	BUS/SCS DIN controller 1 output ON/OFF



488 21



026 00

Please refer to page 65 for more information (Centralized management)



- Vacancy sensing
- ON/OFF control fluorescent
- Time scheduling

CONTROL NEEDS

1. Manual ON and scheduled OFF during business hours
2. 2 separated lighting circuits. Some lights stay ON during office hours
3. Override for after hours, manual ON with timed OFF

LIGHTING

Compact fluorescent down lightings with compact fluorescent wall washers in elevator lobby, using electronic ballasts

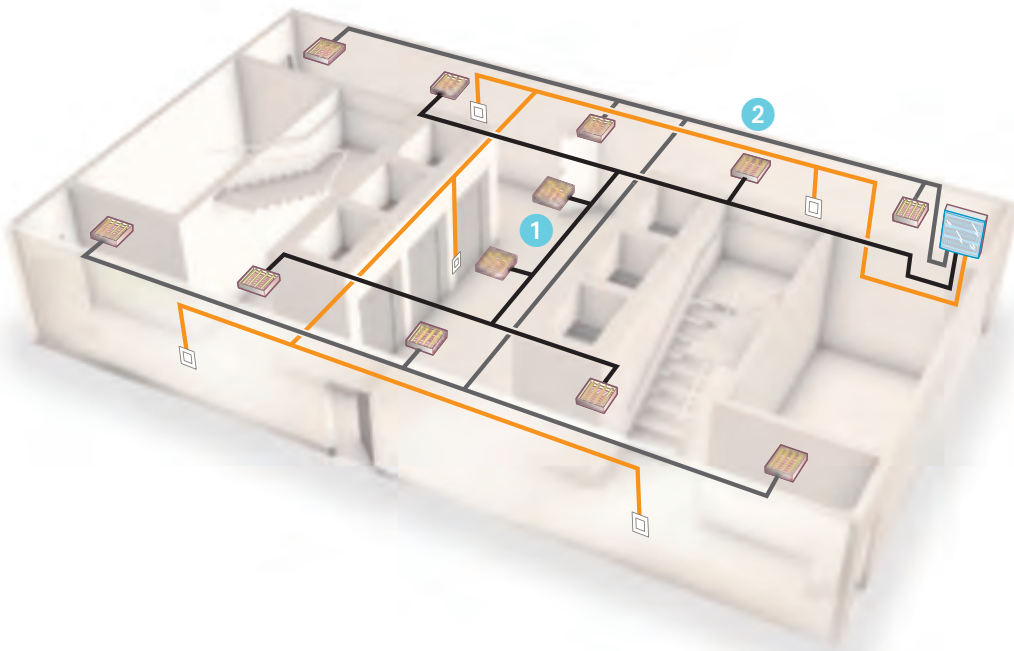
APPLICATION DESCRIPTION

Space use	General circulation
Corridor dimensions	30 x 2 m
Elevator/Lobby dimension	10 x 4 m
Ceiling height	2.50 m
Windows	None

SOLUTION

1. BUS/SCS DIN controllers
2. BUS push-buttons
3. Zone management unit
4. BUS/SCS power supplies

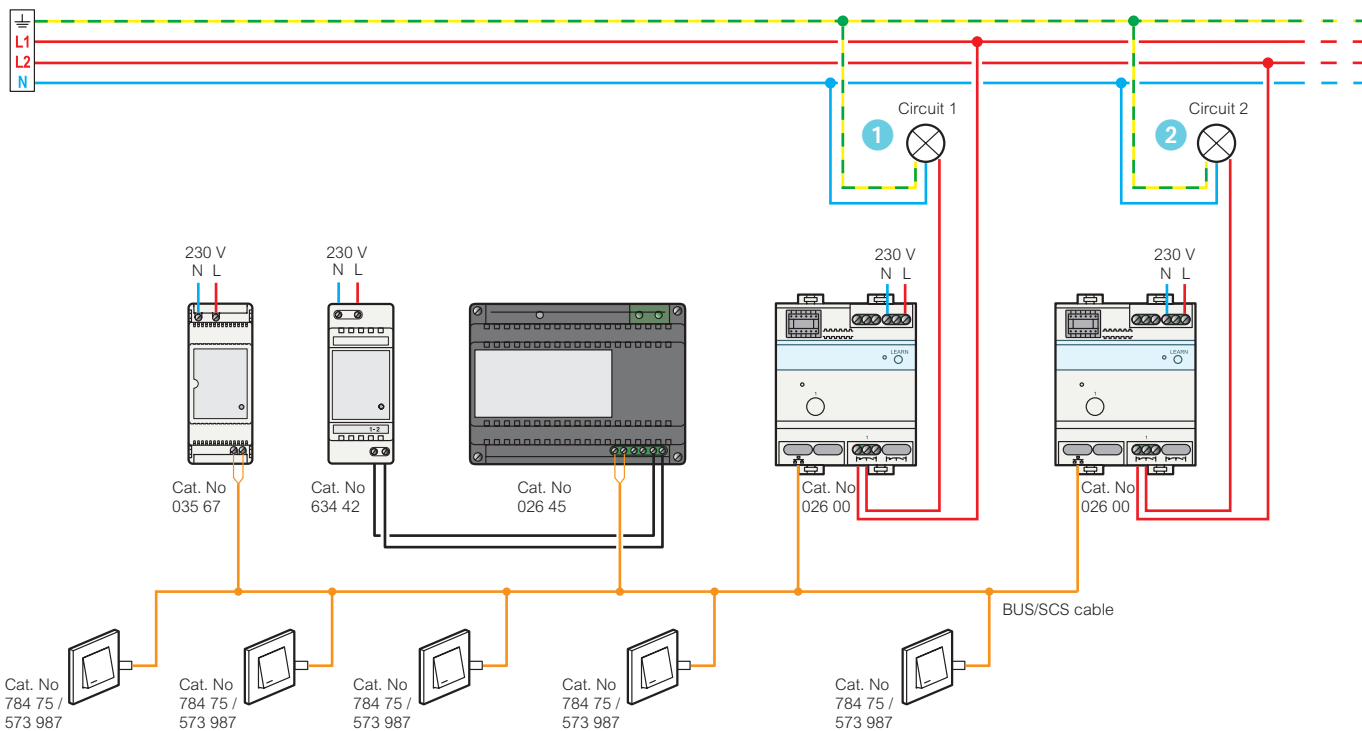
Vacancy sensing, ON/OFF control fluorescent, time scheduling



LIGHTING PLAN

DESIGN SOLUTION DESCRIPTION

All lights have to stay ON from 8.00 am to 9.00 am (arrival time) and from 5.30 pm to 6.00 pm (departure time). During week-ends & public holidays all lights are OFF. During business hours some lights are permanently ON (circuit ②). During business hours (circuit ①) the other lights are manually turned ON using BUS push-buttons. They stay ON for 5 minutes.



Configuration software suite

Configuration for connecting products to the BUS/SCS line

INSTALLATION AND WIRING DETAILS


INSTALLATION NOTES

1. Mount the BUS push-buttons Cat.Nos 784 75 (Mosaic) or Cat.Nos 573 987 (Arteor) along the corridor.
2. Connect the BUS push-buttons to the BUS/SCS DIN controller Cat.No 026 00 with BUS/SCS cable Cat.No 492 31/32/33. Connect the circuits ① & ② to BUS/SCS DIN controllers Cat.Nos 026 00. These two DIN controllers are powered by 2 different circuits.
3. Connect the zone management unit Cat.No 026 45 to the BUS. BUS and zone management unit are powered by the 2 SCS DIN power supplies Cat.No 035 67 and power supply scheduler Cat.No 634 42. Mount the BUS power supply Cat.No 035 67 and zone management unit power supply Cat.No 634 42 on a rail.
4. Commission the zone management unit according to zone management unit programming documentation.


- Vacancy sensing
- ON/OFF control fluorescent

EQUIPMENT SCHEDULE LOCAL MANAGEMENT


Cat.Nos	Quantity	Description
026 00	2	BUS/SCS DIN ON/OFF controller 1 output 16 A
634 42	1	BUS/SCS power supply for Cat.No 026 45
026 45 ^(*)	1	Zone management unit
035 67 ^(*)	1	BUS/SCS DIN power supply 27 V 500 mA
784 75	5	BUS lighting control unit 1-way - Mosaic
573 987	5	BUS lighting control unit - Arteur



026 00



026 45



784 75

(*) This product can be shared.



- Occupancy sensing
- Overriding
- Daylighting

CONTROL NEEDS

1. Turn lights automatically on upon detection
2. Manual Override with ON/OFF and dimming cap from main desk
3. Lighting scenario control

LIGHTING

Pending halogen luminaires

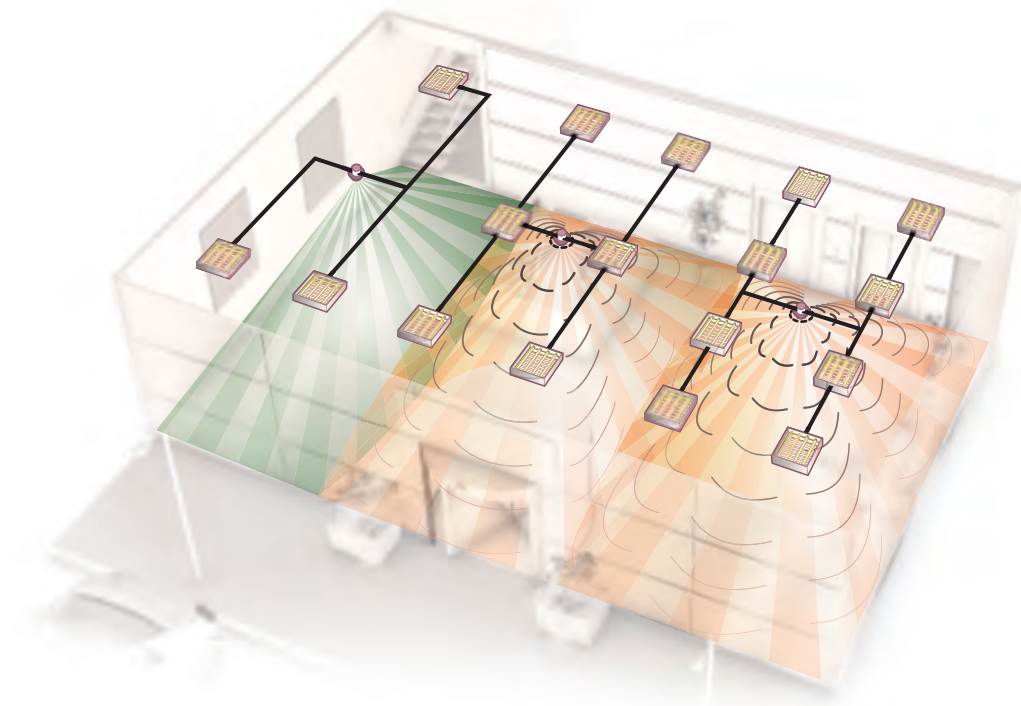
APPLICATION DESCRIPTION

Space use	Main reception
Dimensions	approx. 300 m ²
Ceiling height	4 m
Windows	Alongside main entrance

SOLUTION

1. BUS DUAL technology sensors
2. BUS PIR sensors
3. BUS/SCS DIN dimming controllers
4. BUS/SCS touch screen

Occupancy sensing, overriding, daylighting

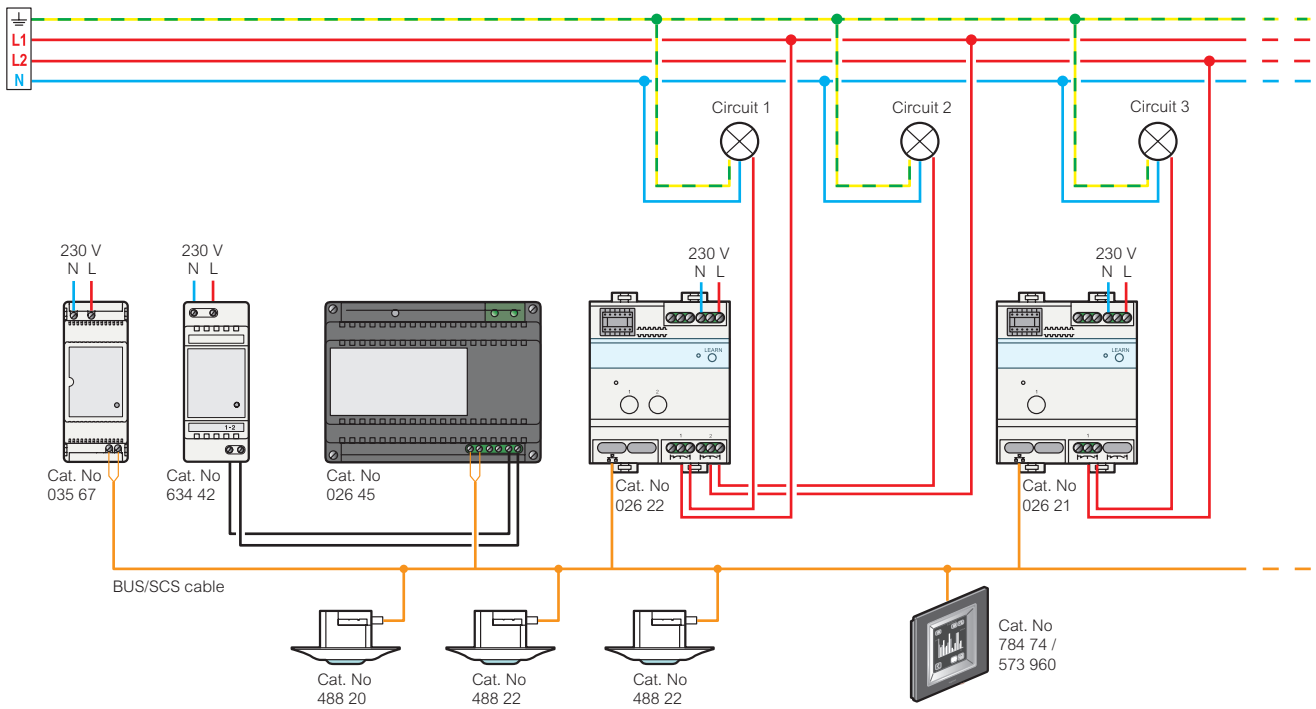


LIGHTING PLAN

54

DESIGN SOLUTION DESCRIPTION

Lights are automatically turned on upon occupancy. Each sensor controls its own zone. During the day lights are dimmed automatically according to daylight and 500 lux are maintained at reception area, 100 lux in waiting area and stairs area. Lights are not turned off during working hours even though nobody is present, and 50 lux are maintained in the whole zone. For special events a dedicated lighting scenario can be easily launched. After working hours and during the week-end there are off.



Configuration software suite
Configuration for connecting products to the BUS/SCS line

INSTALLATION AND WIRING DETAILS

INSTALLATION NOTES

1. Mount the SCS sensors Cat.Nos 488 22 and 488 20 in the false ceiling.
2. Mount the power supply Cat.No 035 60 and the two DIN dimming controllers Cat.No 026 22 an Cat.No 026 21 in the cabinet of the lobby.
3. Mount the multiple scenarios touch screen Cat.No 784 74 (Mosaic) or Cat.No 573 960 (Arteor) in the wall close to main reception.
4. Connect all these devices together with the BUS/SCS cable Cat.No 492 31/32/33.
5. Use software pack Cat.No 488 81 to commission the BUS sensor and the controllers and to set the dimming level. Please refer to Cat.No 488 81 instruction sheets for more details.
6. The sensors are shipped with a factory pe-set time delay of 15 minutes, 500 lux and sensivity at maximum. Please note that standard EN 15 193 recommends 100 lux for lobby, use the mobile configurator Cat.No 882 30 to change sensors settings if needed (time, lux, sensivity).

- Occupancy sensing
- Overriding
- Daylighting

EQUIPMENT SCHEDULE LOCAL MANAGEMENT

Cat.Nos	Quantity	Description
488 22	2	Ceiling-mounted DUAL technology BUS sensor 360 °
488 20	1	Ceiling-mounted PIR BUS sensor 360 °
026 21	1	BUS/SCS DIN dimming controller halogen 1 output
026 22	1	BUS/SCS DIN dimming controller halogen 2 outputs
634 42(*)	1	Power supply for zone management unit
026 45(*)	1	Zone management unit
035 67(*)	1	BUS/SCS DIN power supply 27 V 500 mA
784 74	1	BUS/SCS multiple scenarios touch screen control - Mosaic
573 960	1	BUS/SCS multiple scenarios touch screen control - Arteor
488 81	1	Software pack 2



488 22



784 74



026 45

(*) This product can be shared.



- Occupancy sensing
- ON/OFF control fluorescent
- Fan control

CONTROL NEEDS

Automatically turn lights ON and OFF based on occupancy

LIGHTING

Recessed 1 x 4 luminaires using two T5 lamps and a two-lamp Electronic ballast

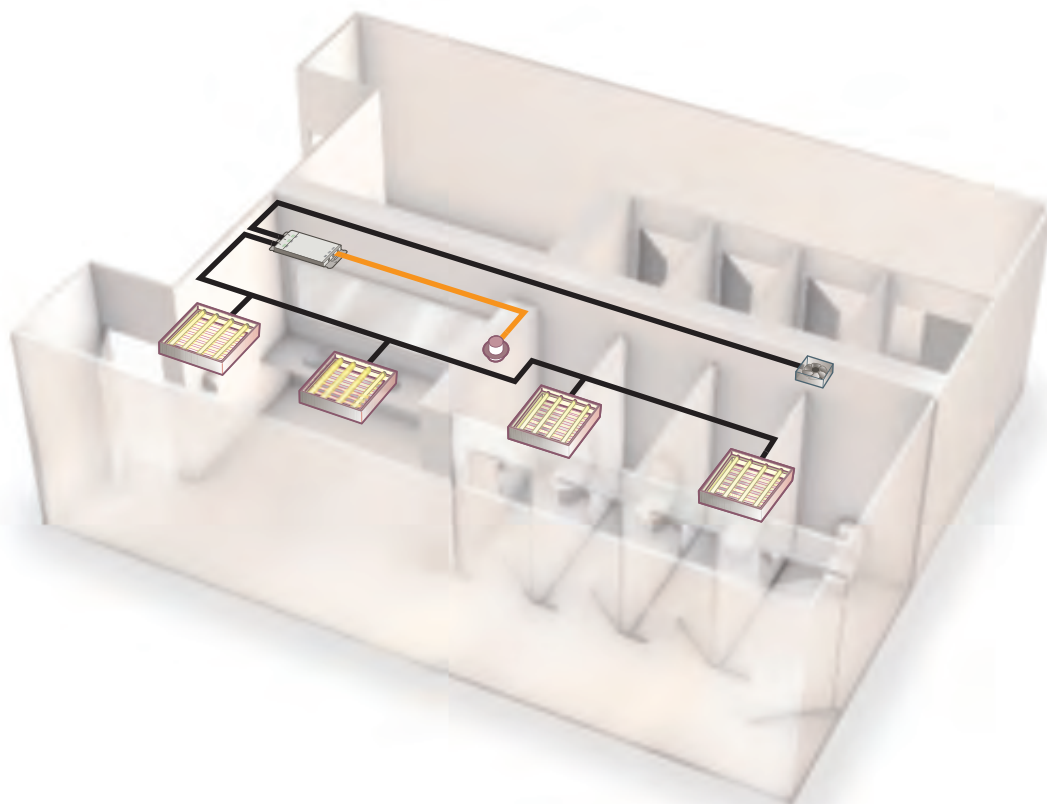
APPLICATION DESCRIPTION

Space use	Restroom
Dimensions	3 x 7 with 2 x 1.50 alcove (each)
Ceiling height	2.50 m
Windows	None
Window blinds	None

SOLUTION

1. Ceiling-mounted ultrasonic technology 2 outputs sensor
2. Room controller

Occupancy sensing, ON/OFF control fluorescent, fan control



LIGHTING PLAN

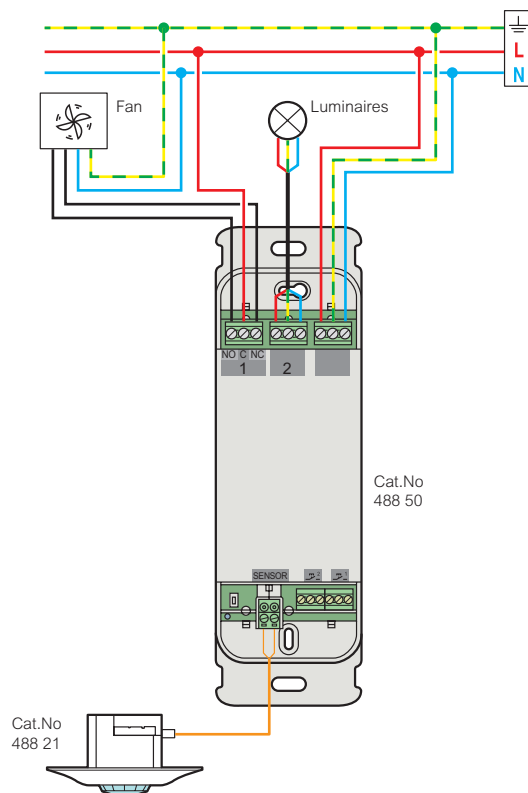
58

DESIGN SOLUTION DESCRIPTION

An ultrasonic ceiling mount BUS sensor Cat.No 488 21 is mounted in each restroom, to turn lighting & fan ON when the restroom is occupied and OFF when vacant.

The BUS sensor can detect occupancy around stall partitions and other obstacles.

The BUS sensor Cat.No 488 21 is connected to a room controller Cat.No 488 50.



Plug n' go
Configuration for connecting products to the BUS/SCS line

INSTALLATION AND WIRING DETAILS

INSTALLATION NOTES


1. Mount room controller Cat.No 488 50 in the false ceiling on cable tray.
2. Mount BUS sensor Cat.No 488 21 on the centre of the room above stall partitions. Mount the BUS sensor on a rigid, vibration-free surface, at least 2 metres from supply air ducts.
3. The sensor is shipped with a factory pre-set time delay of 15 minutes, 500 lux and sensitivity at maximum. Please note that standard EN 15 193 recommends 200 lux for restrooms, use the mobile configurator Cat.No 882 30 to change sensor settings if needed (time, lux, sensitivity).

RESTROOM


- Occupancy sensing
- ON/OFF control fluorescent
- Fan control

EQUIPMENT SCHEDULE LOCAL MANAGEMENT

1st option		
Cat.Nos	Quantity	Description
488 21	1	Ceiling-mounted ultrasonic BUS sensor 360 °
488 50	1	Room controller 2 outputs 16 A




488 21




488 50

EQUIPMENT SCHEDULE CENTRALIZED MANAGEMENT

2nd option		
Cat.Nos	Quantity	Description
488 21	1	Ceiling-mounted ultrasonic BUS sensor 360 °
488 47	1	BUS/SCS room controller 2 outputs ON/OFF or 1-10 V, 2 outputs for blinds and fans



488 21



488 47

Please refer to page 65 for more information (Centralized management)



- Time scheduling
- Photo sensor

CONTROL NEEDS

Parking luminaires	turn ON at dusk and OFF at 10 pm
Parking luminaires security	turn ON at dusk and OFF at dawn
Bulkhead lights	turn ON at dusk and off at dawn
Entrance luminaires	turn ON and OFF automatically with manual override

LIGHTING

Building-mounted wall packs for perimeter security lighting, bollards for lighting walkways, recessed down lights lighting entrances and exits, and pole-mounted shoebox luminaires lighting parking lots

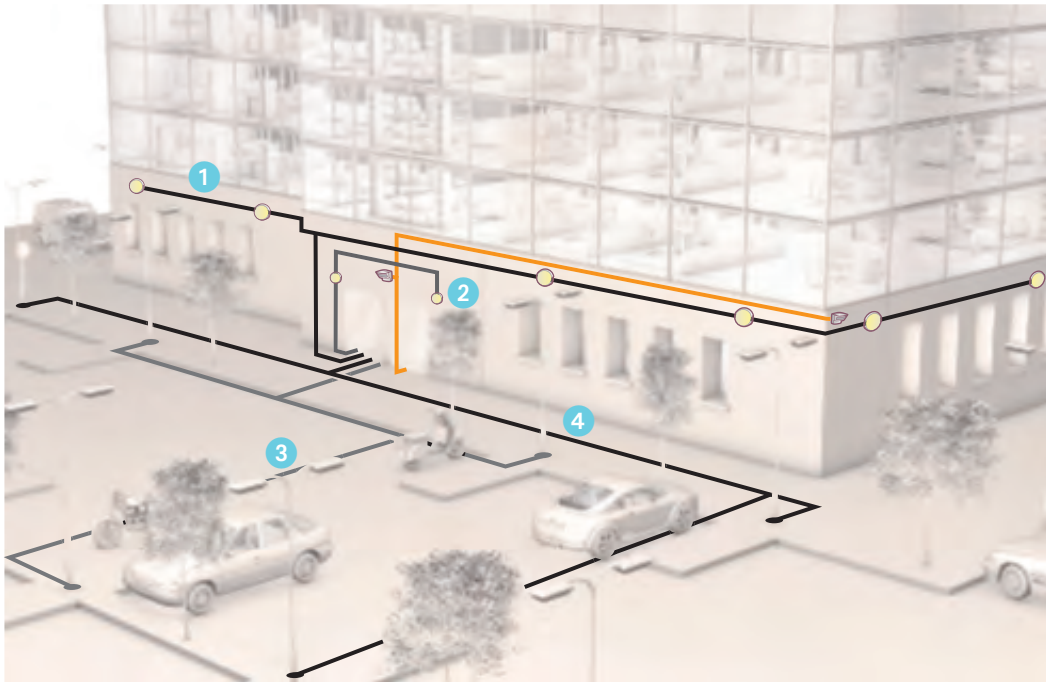
APPLICATION DESCRIPTION

Space use	Exterior lighting control of building, parking lot, walkway and canopy lighting
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SOLUTION

Photo sensor ON/scheduled OFF using scheduler

Time scheduling, photo sensor

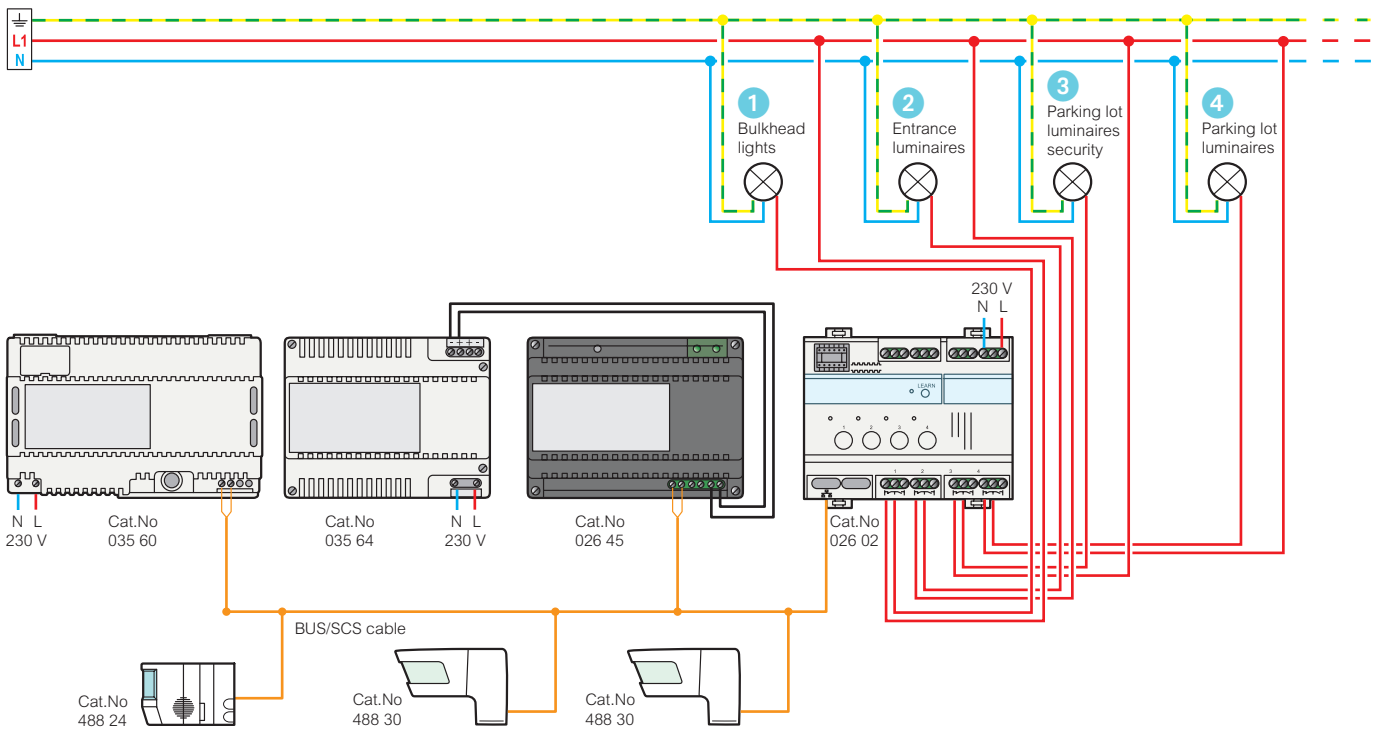


LIGHTING PLAN

62

DESIGN SOLUTION DESCRIPTION

All the exterior lighting and bulkhead lights (1 + 3 + 4) are turned ON at dusk using the photo cell of the sensor Cat.No 488 30 located at the corner of the building. One of the exterior light circuits 4 is scheduled to switch OFF at 10:00 pm in the evening. The other exterior lighting circuit 3 and bulkhead lights 1 remain ON all night for security reasons. They are turned OFF at 9:00 am. Entrance luminaires 2 are turned ON automatically upon detection with Cat.No 488 24.



Configuration software suite

Configuration for connecting products to the BUS/SCS line

INSTALLATION AND WIRING DETAILS




INSTALLATION NOTES

1. Mount the BUS sensors Cat.Nos 488 30 at the entrance and at the corner of the building.
2. Mount the BUS sensor Cat.No 488 24 in the entrance corridor.
3. Mount the BUS/SCS DIN power supplies Cat.Nos 035 60, 035 64, and the zone management unit Cat.No 026 45 and BUS/SCS DIN controller Cat.No 026 02 in a cabinet.
4. Connect the circuit 1, 2, 3 and 4 to the BUS/SCS DIN controller.
5. Connect the BUS/SCS cable Cat.No 492 31/32/33 to the power supplies.
6. The sensors are shipped with a factory pre-set time delay of 15 minutes, 300 lux and sensitivity at maximum. Use the mobile configurator Cat.No 882 30 to change sensor settings if needed (time, lux, sensitivity).

- Time scheduling
- Photo sensor

EQUIPMENT SCHEDULE LOCAL MANAGEMENT & CENTRALIZED MANAGEMENT

1st option		
Cat.Nos	Quantity	Description
488 30	2	Corner mount PIR BUS sensor 270 °
488 24	1	Corner mount PIR BUS sensor 180 °
026 02	1	BUS/SCS DIN ON/OFF controller 4 outputs 16 A
035 64 ^(*)	1	BUS/SCS DIN power supply for Cat.No 026 45
026 45 ^(*)	1	Zone management unit
035 60 ^(*)	1	BUS/SCS DIN power supply 27 V 1200 mA

Please refer to page 65 for more information (Centralized management)

(*) These products can be shared.

Building (individual) network communication

CONTROL NEEDS

1. Time clock scheduling of the whole building from Main Desk computers
2. Exterior lighting control via IP 55 sensor
3. Local & central switching dimming and override control of lighting (vacancy sensing) in large conference rooms, cubicles, open offices, private offices
4. Occupancy-based shut-off sensing (Occupancy sensing) control in small conference rooms, hallways, kitchen, restrooms
5. Control of blinds and fan

BUILDING REQUIREMENTS

Requires a zone management unit on each floor, linked to the lighting management BUS and LAN network. Each floor is controlled independently.

Main control of the whole building from the maintenance office.

APPLICATION DESCRIPTION

Single three story building with parking lot, walkway, building lighting and signs.

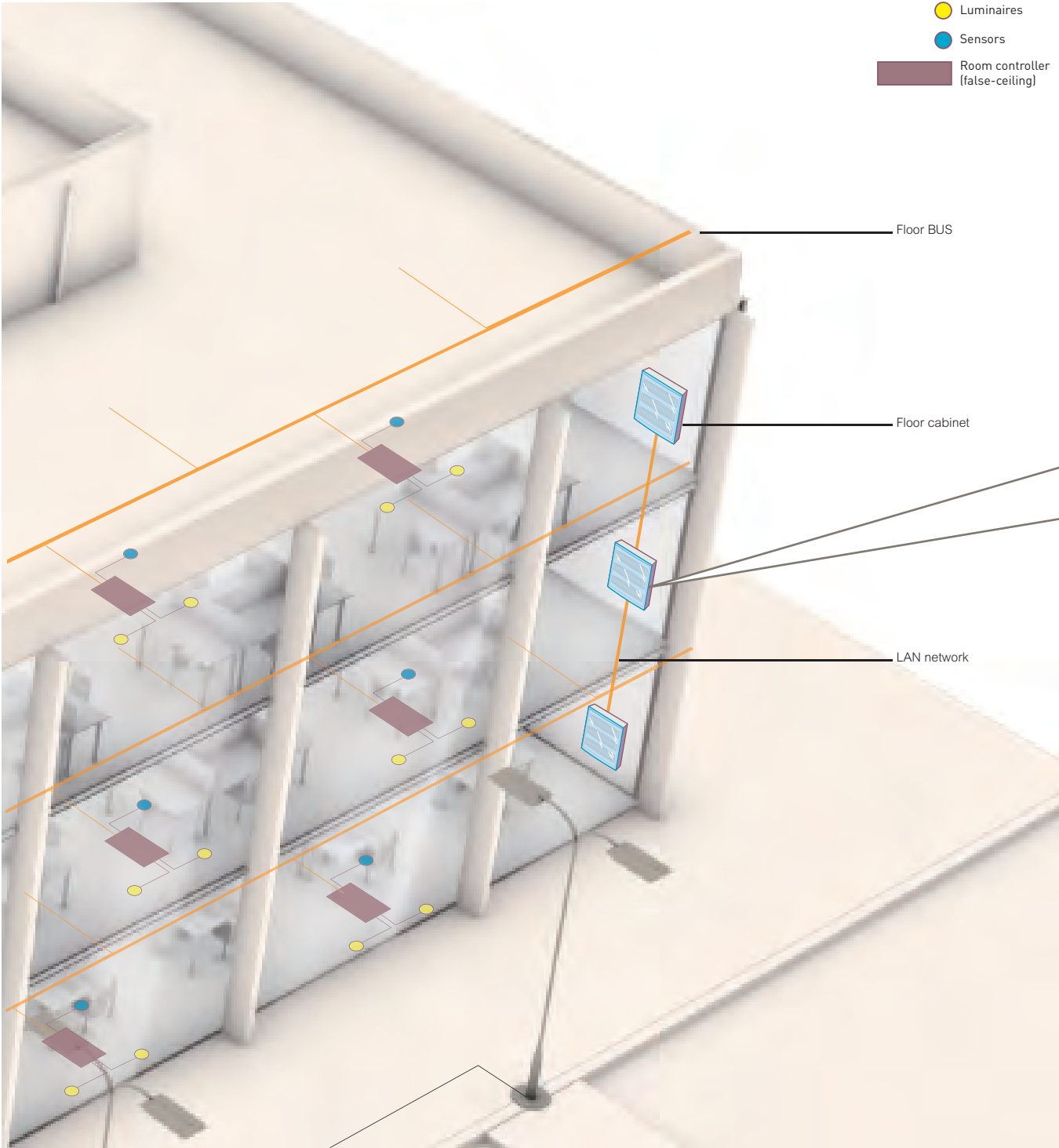
Electrical distribution main cabinet on each floor in core area.

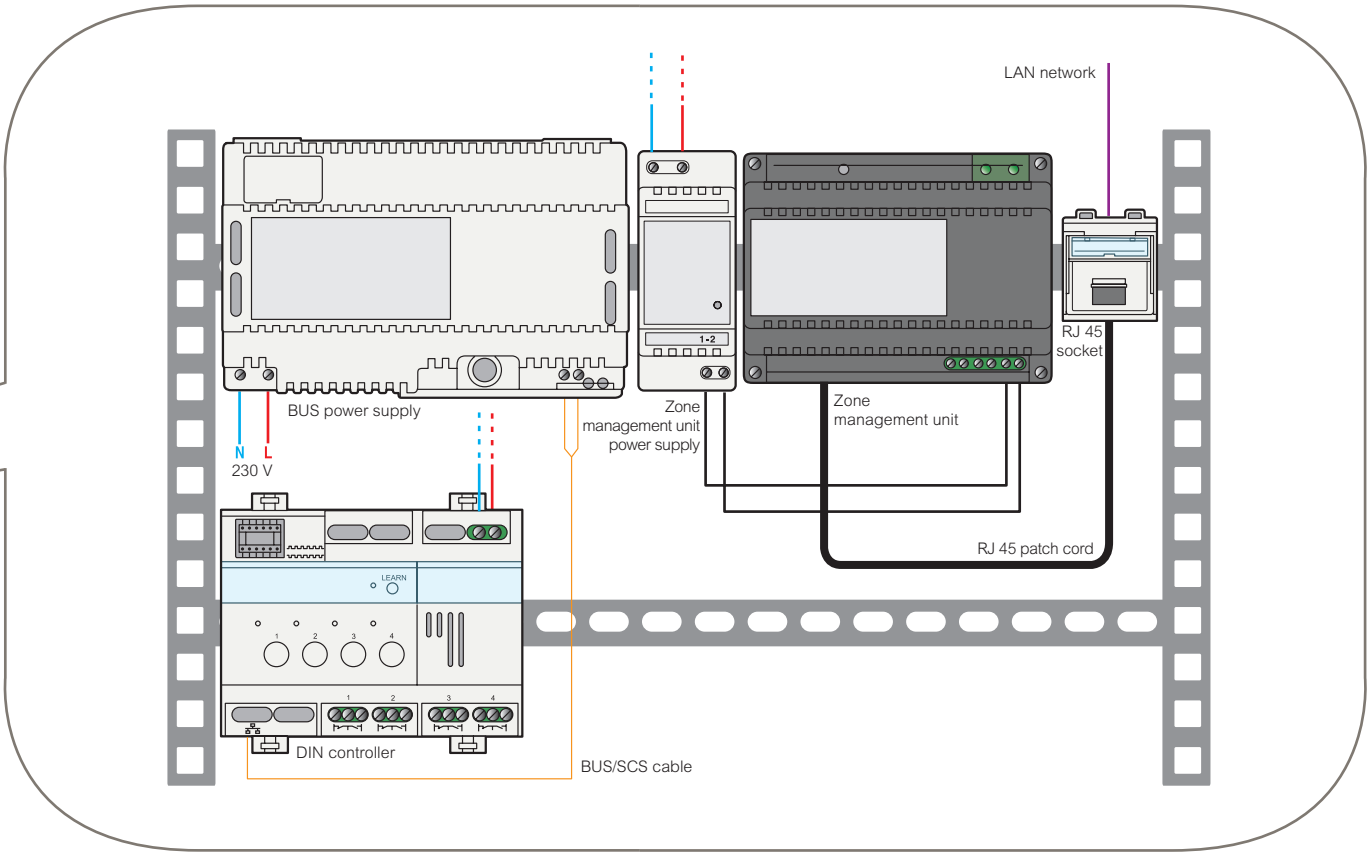
SOLUTION

1. Lighting management Software suite on main PC
2. BUS/SCS sensors located in main rooms
3. Manual switches for turning lights manually ON or overriding
4. False ceiling or DIN mounting controllers to control lighting & fan & blinds
5. Zone management unit on each branch of the BUS/SCS. 1 per floor

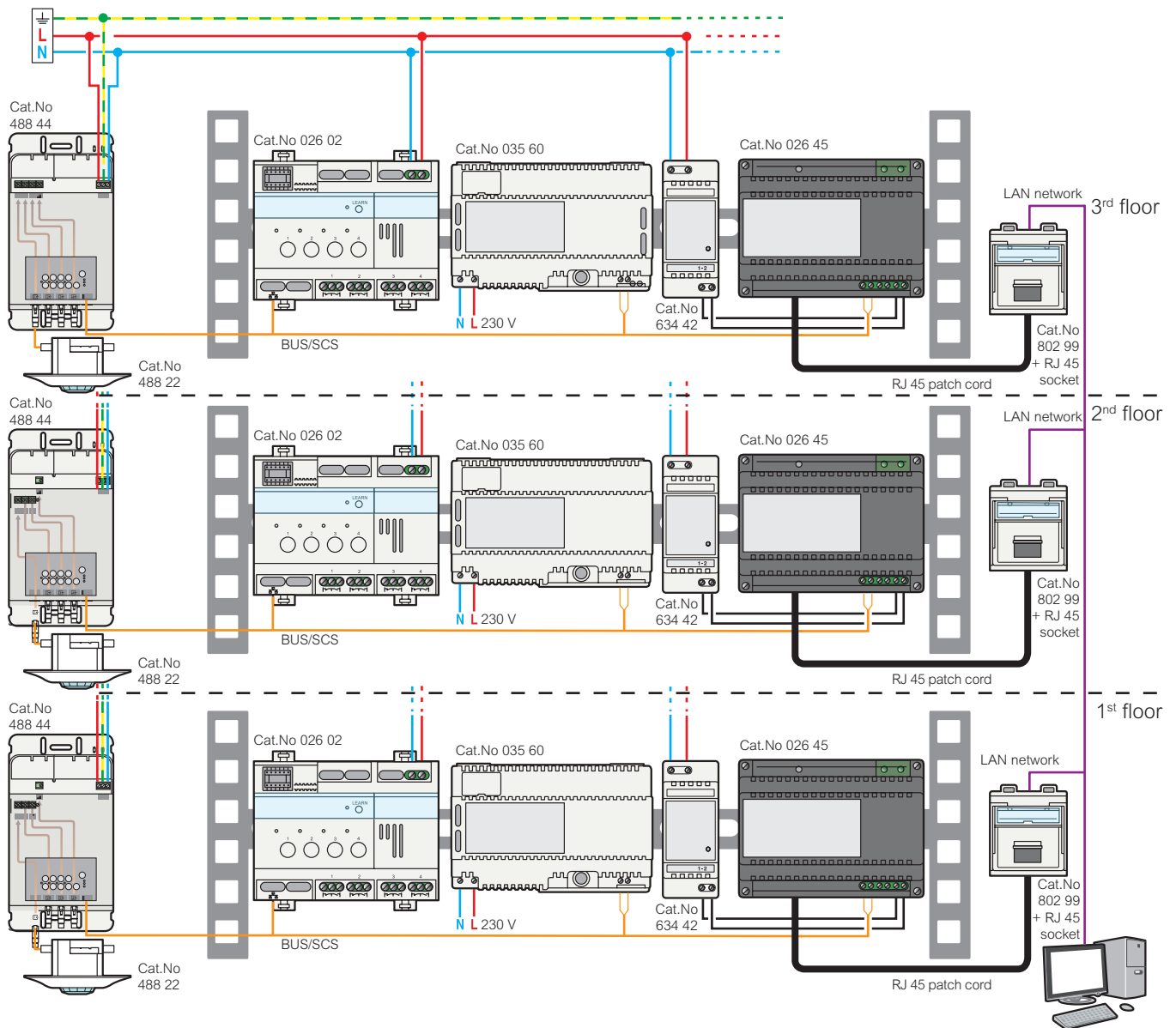
Building (individual) network communication

LIGHTING MANAGEMENT SOLUTIONS | BEST PRACTICE GUIDE FOR OFFICE BUILDINGS





CENTRALIZED MANAGEMENT



INSTALLATION AND WIRING DETAILS

INSTALLATION NOTES

1. Design of your project using the software suite Cat.No 488 80. This software allows you to select your detector and controller products and create your project's architecture. A project database is created with all the components necessary for your installation and the functional links between products.
2. Cabling of the products resulting from your project. The maximum length of each floor bus is 500 m. To extend this limit, it would be necessary to add extension modules, Cat.No 035 62. The maximum number of circuits for each branch of the bus (associated with the zone management unit) is 175.
3. Power supply to each branch of the bus. Addressing of all products in each branch via the Virtual Configurator software connected to the LAN. The installation is now operational.
4. Adjustment of the detector settings via the mobile configuration tool, Cat.No 882 30. Adjustment of the default detector parameters (delay, sensitivity, mode, lux, calibration). Refer to the technical data sheet for Cat.No 882 30 for more details.



Ground Floor

CONTROL NEEDS

1. Floor scenarios

- Certain lighting circuits switched on for the night watchman's round, according to set times
- All lighting circuits on a floor forced ON and forced OFF when carrying out lighting maintenance
- Corridor lighting circuit switched on if there is at least one person present on that floor
- Illumination of certain glazed outer walls of the building according to set times
- One lobby circuit remains switched on in the evening from 17:00 to 22:00 on working days
- Centralised control of meeting rooms from a touch screen

2. Monitoring

- Viewing the status of luminaires throughout the building
- Instant control of presence and the light level in each room
- Management of lamp lifetimes

APPLICATION DESCRIPTION

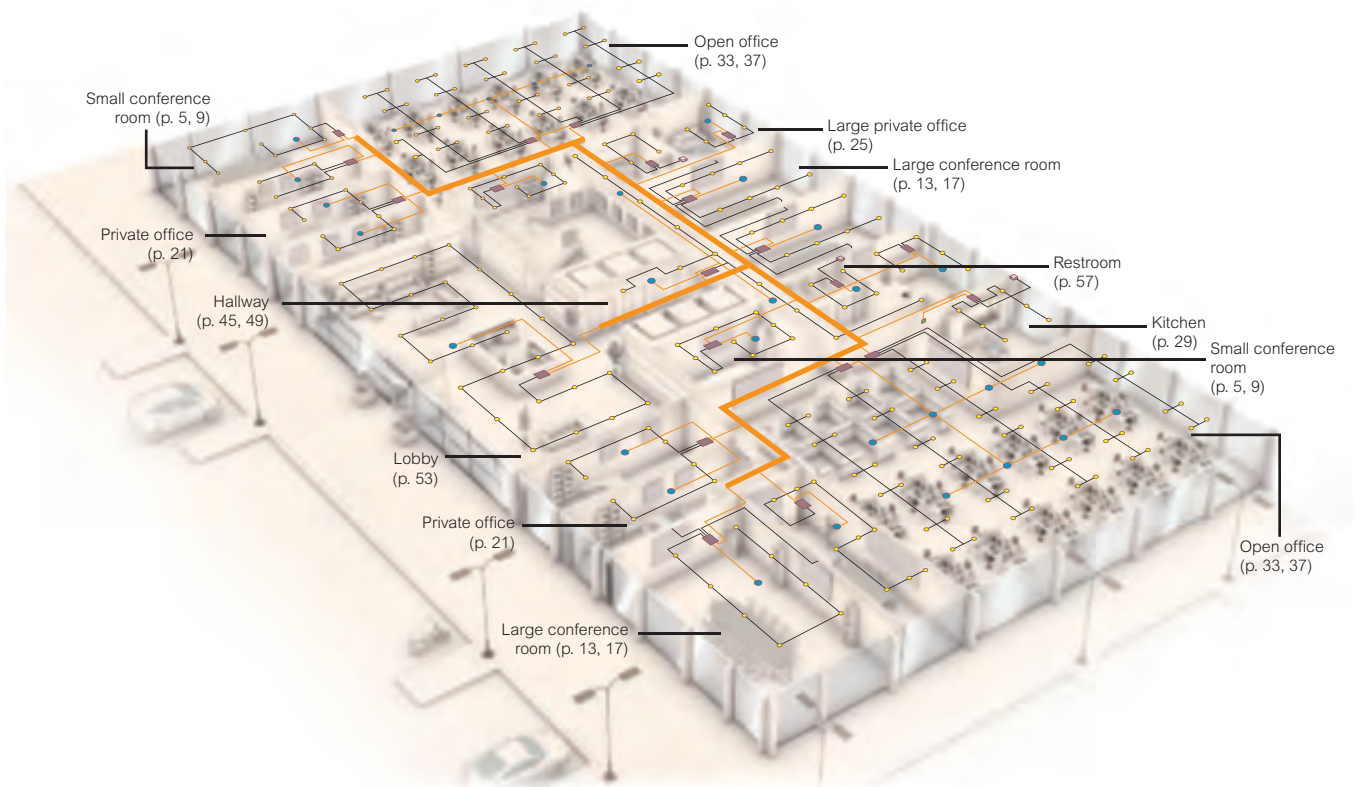
Floor of 1500 m², comprising a lobby, two open spaces, conference rooms and individual offices

All the central controls for the building and the floor are done from the office in the lobby

SOLUTION

1. Recessed touch screen close to the reception office in the lobby
2. Software Pack 3 installed on the lobby office PC
3. SCS contact interface
4. Key switch

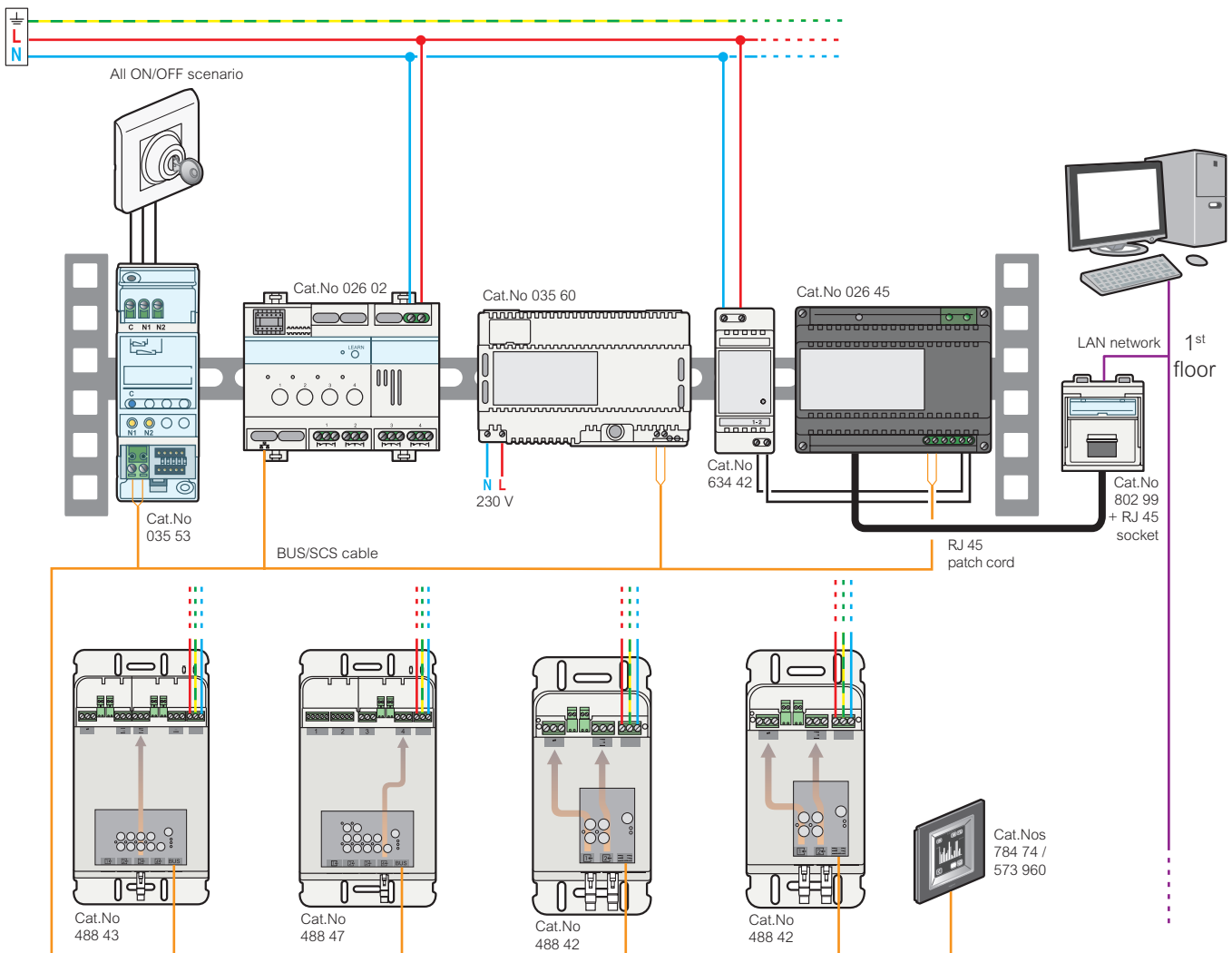
Ground Floor



- Luminaires
- Sensors
- Room controller (false-ceiling)

Configuration software suite

Configuration for connecting products to the BUS/SCS line



INSTALLATION AND WIRING DETAILS

INSTALLATION NOTES

1. Fit all the controllers and their peripherals as indicated in all typical areas dealt with in this document.
2. Link all the controllers together via the BUS/SCS cable. The total length of the bus must not exceed 500 m.
3. Fit the BUS power supply in an electrical panel, ideally at the centre of the floor. The distance between the power supply and the furthest controller must not exceed 250 m.
4. In this same panel, install a zone management unit with its dedicated power supply and also an RJ45 connector for easy connection to the zone management unit. The scenario management is situated in the reception hall. To configure the touch screen, refer to the accompanying instructions.
5. A key switch in the maintenance staff office allows all the luminaires on a floor to be switched ON or OFF. It is connected to the SCS contact interface, Cat.No 035 53.
6. The floor is configured and saved using software suite Cat.No 488 82.

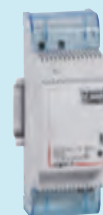
Ground Floor

EQUIPMENT SCHEDULE

Cat.Nos	Quantity	Description
784 74	1	BUS/SCS multiple scenarios touch screen control - Mosaic
573 960	1	BUS/SCS multiple scenarios touch screen control - Arteor
035 60	1	BUS/SCS DIN power supply 27 V 1200 mA
492 31/32/33	1	BUS/SCS cable
026 45	1	Zone management unit
634 42	1	BUS/SCS power supply for Cat.No 026 45
035 53	1	BUS/SCS DIN contact interface
784 73	1	3-position keyswitch - Mosaic
572 232	1	3-position keyswitch - Arteor



026 45



634 42



784 74

+ All the references quoted:

- p.8 - Small conference room (1)
- p.12 - Small conference room (2)
- p.16 - Large conference room (1)
- p.24 - Private offices
- p.28 - Large private office
- p.32 - Kitchen
- p.36 - Open office
- p.48 - Hallway/elevator
- p.60 - Restroom

Use and monitoring of the software is done from the System Utilities and BM Visual software, included in software suite Cat.No 488 82.



Floor 1 & 2

CONTROL NEEDS

1. Floor scenarios

- Some lighting circuits switched on to allow the night watchman to make his rounds
This scenario is selected via a touch screen
- All circuits on a floor switched on for cleaning for 1 ½ hours
This scenario is selected via a touch screen
- A centralised time switch for shutter control raises all awnings at the end of the day (to prevent any damage in the event of bad weather)
This scenario is selected via a touch screen

FLOOR REQUIREMENTS

Floor of 1500 m², comprising open spaces, conference rooms, individual offices and corridors.

All the central controls for the floor are done by way of a touch screen located in the maintenance staff's office

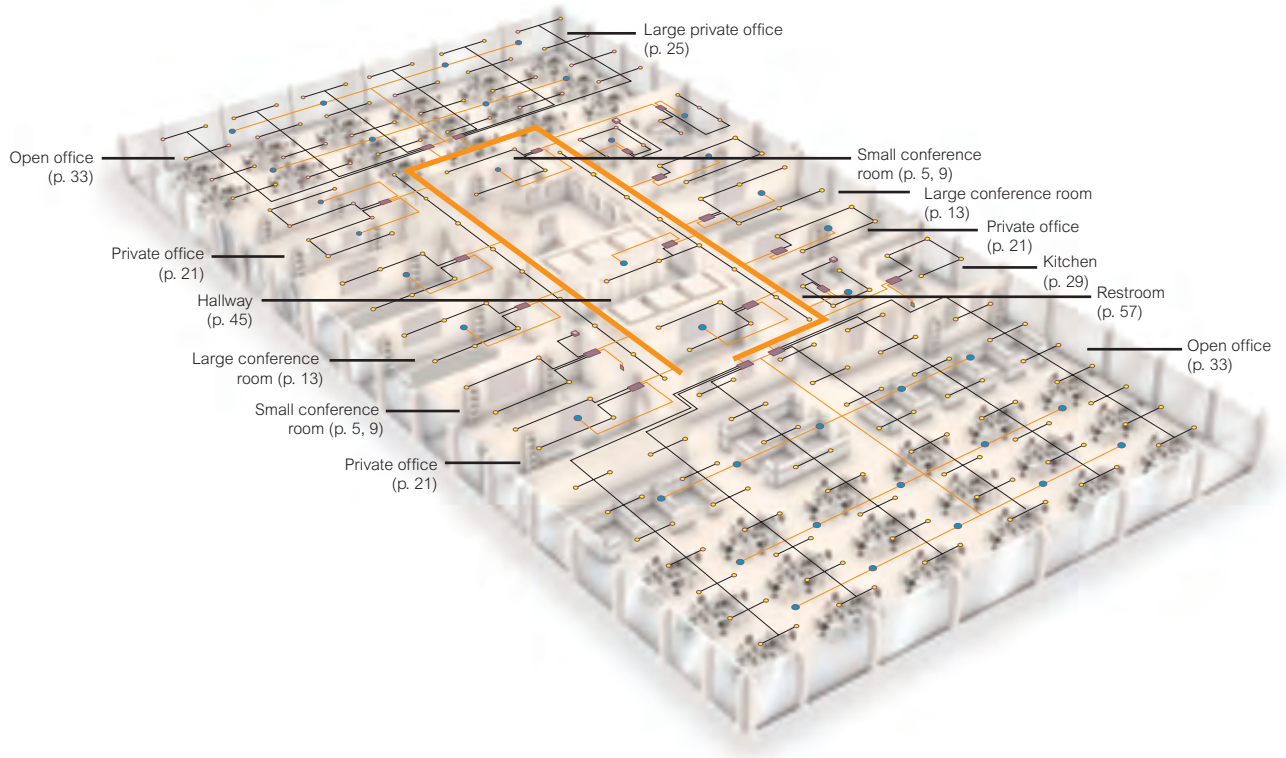
APPLICATION DESCRIPTION

1500 m² with corridor, open spaces, individual offices and meeting room

SOLUTION

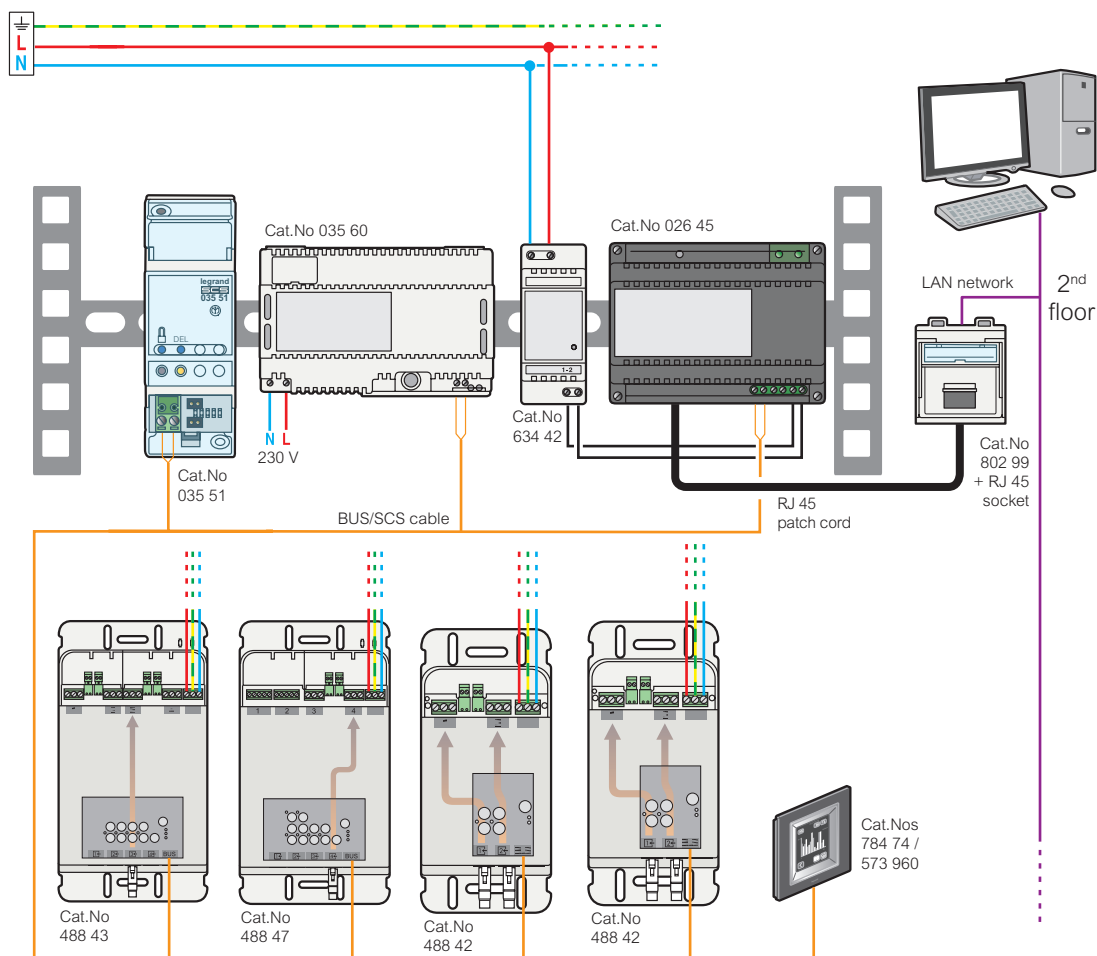
1. Touch screen
2. Zone management unit

Floor 1 & 2



- Luminaires
- Sensors
- Room controller (false-ceiling)

Push n' learn
Configuration for connecting products to the BUS/SCS line



INSTALLATION AND WIRING DETAILS

INSTALLATION NOTES

1. Fit all the controllers and their peripherals as indicated. Refer to pages 8, 12, 16, 24, 28, 32, 36, 48 and 60.
2. link all the controllers together via the BUS/SCS cable. The total length of the bus must not exceed 500 m.
3. Fit the BUS power supply in an electrical panel, ideally at the centre of the floor. The distance between the power supply and the furthest controller must not exceed 250 m.
4. In this same panel, install a zone management unit with its dedicated power supply and also an RJ45 connector for easy connection to the zone management unit. The scenario management is situated in the corridor on that floor. To configure the touch screen, refer to the accompanying instructions.
5. In association with the scenario manager, a scenario module situated in the panel on the same floor allows scenarios to be created without difficulty.

Floor 1 & 2

EQUIPMENT SCHEDULE

Cat.Nos	Quantity	Description
784 74	1	BUS/SCS multiple scenarios touch screen control - Mosaic
573 960	1	BUS/SCS multiple scenarios touch screen control - Arteor
035 60	1	BUS/SCS DIN power supply 27 V 1200 mA
492 31/32/33	1	BUS/SCS cable
035 51	1	BUS/SCS DIN scenario module
026 45	1	Zone management unit
634 42	1	BUS/SCS power supply for Cat.No 026 45



026 45



634 42



784 74

+ All the Catalogue Numbers quoted :

- p.8 - Small conference room (1)
- p.12 - Small conference room (2)
- p.16 - Large conference room (1)
- p.24 - Private offices
- p.28 - Large private office
- p.32 - Kitchen
- p.36 - Open office
- p.48 - Hallway/elevator
- p.60 - Restroom

The configuration of all the products must be done without the use of a tool, by manually pressing the learn buttons on each controller, control and sensor. Refer to the push'n learn configuration sheets for more information.
This project may be saved, using the Virtual Configurator software.

Putting a stop to energy waste

Our vision at Legrand is to provide products and services that make buildings more energy-efficient. We are committed to 'putting a stop to energy waste'.

Legrand offers two types of solutions and proposes related services to ensure that your lighting management project saves energy and helps the environment.

Switch sensors

100-240 V a.c. 50/60 Hz



BUS/SCS systems

BUS | SCS 27 V



WHY IMPLEMENT LIGHTING MANAGEMENT ?

Lighting is a significant consumer of energy in commercial buildings.

- **20%** of total site energy is **consumed by lighting** in commercial buildings.
- **Lighting** is the first electricity end-user in a commercial building with up to **40% electricity consumed***.

Each year, more organisations implement lighting management because they recognise its wide range of benefits:



Energy savings



Economic savings



Code compliance



Sustainability building practice

REQUIREMENTS FOR IMPLEMENTING LIGHTING MANAGEMENT

Mandatory requirements

Standards on energy savings

European Standard EN15193 provides a guideline for the energy performance of lighting systems. Legrand has chosen this standard as a basis to demonstrate the energy performance of its lighting solutions. This standard is widely recognized and provides a calculation methodology on energy savings according to the type of solution installed, the type of building and the type of room.

Putting a stop to energy waste

Legrand is committed to providing customers with comprehensive, transparent information on actual savings for its lighting management solutions: saving on energy + Green House Gas (GHG) emissions avoided.

Look for this information in our best practice literatures.



Note: A vehicle with an average consumption of 4.5 l/100 km emits 11.8 kg of CO₂/100 km i.e. 0.118 g of CO₂/km

Voluntary programmes

Green Building programmes

Green Building is an approach to building that considers the overall environmental impact of a building as well as the health and well-being of its occupants.

Green Building programmes are voluntary, consensus-based programmes that provide guidelines. These programmes generally have an associated rating tool for assessing the environmental performance of the building and certifying its compliance with the standard.

Green Building certification is awarded to differentiate sustainable building projects and give them credibility. Major Green Building programmes include LEED, BREEAM, HQE and GREEN STAR.



HOW TO IMPLEMENT LIGHTING MANAGEMENT ?

Lighting management strategies

Lighting management strategies refer to the basic method that will be used to control lighting systems. This will include automatic operation of the lighting, taking into account the needs of the space's occupants :



Occupancy-based control



Scheduled control



Daylighting level control



Vacancy-based control



Dimming control

Lighting management technologies

Lighting management technologies refer to the actual device that will be used to implement a specific strategy and the method the device will use to operate (passive infrared, ultrasonic or dual technology sensors, timers or dimmers).



PIR technology



Ultrasonic technology



Dual technology

LIGHTING MANAGEMENT PRODUCTS & SYSTEMS

Switch sensors

1 output



2 outputs



BUS/SCS systems

controls



DIN controllers



room controllers



software & accessories



sensors



Radio/Zigbee® accessories



RELATED SERVICES

Local support

Our sales representatives are available to assist with all aspects of a lighting management projects. Services include building walk-through, training, payback analysis reports and product demonstrations.

Technical support

Telephone technical support from our dedicated team offers personal

guidance for application-related questions, installation assistance or troubleshooting.

Field services

Factory-trained assistance during the critical startup and commissioning stages to ensure optimal system performance.

Don't hesitate to contact us.

*Energy end-use distribution greatly varies depending on the activity of the building and across geographical and climate regions (Source : Energy Information Administration, USA)



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