**LIGHTING CONTROLS**

Generally, lighting management will be carried out by presence and brightness detectors. The type, the number, the brightness, and time delay adjustment values ​​will be adapted to the premises and to the controlled lighting sources. Circuits will be properly subdivided so that only dark areas are lit during the day. All detectors must be adjustable by remote control.

**Principles of operation and material requirements**

**1- Management of Small Rooms, Corridors, Stairwells, Platforms and Loading Areas:**

Automatic operation by presence and light sensor

Detector type **PD3N-1C** for ceiling mounting (flush-mounted or surface-mounted depending on the nature of the ceiling) of the brand **BEG LUXOMAT** or technically equivalent and will have the following characteristics:

Protection class: **SM: IP44, FC: IP23/Class II/CE**

Detection area h=2.50 m: **Ø 10 m across, Ø 6 m towards, Ø 4 m activity seat**

Switching power: **2300W cos φ 1/1150VA cos φ 0.5, LED 300W max**

Follow-up time: **30 s to 30 min or pulse** / Brightness: **10 to 2000 Lux**

Applications: **Sanitary / Cloakrooms / Technical rooms / Airlocks...**

Detector type **PD9-M-1C-IP65-FC** for flush ceiling mounting, brand **BEG LUXOMAT** or technically equivalent, with the following characteristics:



Protection class: **Detection head: IP65/Class III/CE, Power supply IP20/Class II/CE**

Detection area h=2.50 m: **Ø 10 m across, Ø6 m towards, Ø4 m seated**

Switching power: **2300W cos φ 1/1150VA cos φ 0.5, LED 300W max**

Follow-up time: **15 s to 30 min or pulse** / Brightness: **10 to 2000 Lux**

Application: **Showers**

Detector type **PD4-M-1C-Corridor + Slaves** in ceiling mounting (recessed or surface-mounted depending on the nature of the ceiling) of the **BEG LUXOMAT** brand or technically equivalent and will have the following characteristics:



Degree / protection class: **SM: IP54 with base, FC: IP20/Class II/CE**

Detection area: h=2,50 m: **40 x 5 m across, 20 x 3 m towards, Ø 8 m vertical**

Switching power: **2300W cos φ 1/1150VA cos φ 0.5,** **LED 300W maxi**

Follow-up time: **30 s to 30 min or pulse /** Brightness: **10 to 2000 Lux**

**Permanent control of daylight and artificial light**

Applications: **Circulations**

Detector type **RC Plus Next 130°/230°/280°** wall-mounted detector of the brand **BEG LUXOMAT** or technically equivalent, with the following characteristics



Protection class: **IP54/Class II/CE**

Detection area h=2.50 m: **20 m across, 6 m towards, 4 m vertical**

Switching power: **3000W cos φ 1/1500VA cos φ 0.5, LED 300W max**

Follow-up time: **15 s to 16 min or pulse** / Brightness: **2 to 2500 Lux**

Applications: **Stairs / Loading area**

**2- Office Management:**

Semi-automatic operation by absence detector on DALI dimmable luminaires. The lighting will be switched on manually and voluntarily by pressing a button. Only dimming, considering natural light, and switching off will be automatic. The PB will also allow the user to manually control the lighting, allowing the user to temporarily force the luminaires to be switched on, off and dimmed.

Detector type **PD4N-M-DACO-DALI 2 + Slaves** for ceiling mounting (recessed or surface mounting depending on the nature of the ceiling) of the brand **BEG LUXOMAT** or technically equivalent and will have the following characteristics:

Protection class: SM: **IP54 with surface-mounted accessory, FC: IP20/Class II/CE**

Detection zones h=2.50 m: **Ø 24 m across, Ø 8 m towards, Ø6,40 m seated**

Interface: **DALI 2 certified, digital driver control in broadcast mode**

Follow-up time: **1 to 150 min or pulse** / Brightness: **10 to 2500 Lux**

**Daylight-dependent constant dimming / 40 digital DALI drivers**

Settings: **Via bi-directional BEG-One smartphone application (read/write)**

Applications: **Offices**

**3- Meeting Room Management:**

Semi-automatic operation by absence detector on DALI dimmable luminaires. The lighting located near the windows will be controlled independently of the lighting on the corridor side to take account of natural light. The lighting will be switched on manually and voluntarily by pressing the push button. Only the variation, considering the natural light, and the extinction will be automatic. The PB will also allow the user to manually control the lighting, allowing him to temporarily force the state of the luminaires to be switched on, off and dimmed. The system will also offer the possibility of creating lighting scenarios, for example for video conferencing or projection. Commissioning and modifications will be carried out via a dedicated smartphone application in BLE (Bluetooth) communication with the system. It will be the responsibility of the holder of the present lot or by a manufacturer's commissioning service.

The principle chosen will be the **DALI-LINK** brand **BEG LUXOMAT** or **technically equivalent,** comprising the following equipment:

* **DALI BUS power supply** type **PS-DALI-LINK-100mA** with the following characteristics:

Main’s supply 230V AC / DALI BUS supply 16V DC / 100 mA / 300m BUS max

Auto-addressing of components on the BUS

Control of up to 25 DALI luminaires and 6 control devices

(Multi sensors/ PB interfaces…)

8 control zones maximum per power supply / 16 groups / 16 scenes

* **Multi DALI sensors** with the following characteristics:

Power supply and communication via DALI BUS 16V DC

Protection class: **IP20/Class 2**

Functions: **Master / Slave / Switching** or **Control / Lighting sensor**

**Type PD11-DALI-LINK**

Detection area h=2,50 m: **Ø 9 m across, 6 m towards, 3 m activity seat**

**Type PD4N-DALI-LINK**

Detection area h=2,50 m: **Ø 24 m across, 8 m towards, 6,40 m activity seat**

* **DALI PB interface** type **PBM-DALI-LINK-4W-BLE** with the following characteristics:

Power supply and communication via DALI BUS 16V DC

Bluetooth communication for setting up

4 independently interfaceable binary inputs

Can be combined with all manufacturers’ pushbuttons



**4- Management of loading areas, storage aisles and access to racks**

Automatic operation by high-level presence detector on DALI dimmable luminaires. Switching on at the set value when present in the rack, automatic dimming according to natural light. In the event of unoccupied loading areas, racks and rack access corridors, minimum dimming for a predefined time or permanently during working hours. The detectors must be positioned carefully so as not to detect people and machinery moving around the racks. The detectors must cover the entire surface of a storage aisle to have detection at all points. Outside of staff occupancy hours, the lighting will be switched off completely.

Detector type **PD4-M-DACO-DALI 2-SM** in ceiling surface mounting (on cable tray) of the brand **BEG LUXOMAT** or technically equivalent and will have the following characteristics



Protection class: **SM: IP54/Class II/CE**

Detection zones h=10 m: **Ø 30 x Ø 19 m towards**

Interface: **DALI 2 certified, digital driver control in broadcast mode**

Time delay: **1 to 150 min or pulse / Brightness: 10 to 2500 Lux**

**Beaconing function at 10 to 30% in case of unoccupancy / 40 digital DALI drivers**

Settings: **Via bi-directional BEG-One smartphone application (read/write)**

Applications: **Loading areas / Storage aisles / Rack access aisles**