**LIGHTING CONTROLS**

Generally, lighting management will be carried out by presence and brightness detectors. The nature of the detectors, 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- Exteriors Management, Small Premises, Parking:**

Automatic operation by presence and light sensor

**LC Plus 280°** wall-mounted detector of the brand **BEG LUXOMAT** or technically equivalent and will have the following characteristics:



Degree / protection class: **IP54/Class II/CE**

Detection area: h=2,50 m: **16 m across, 9 m towards, 2 m vertical**

Switching power: **2000W cos φ 1/1000VA cos φ 0.5,** **LED 250W maxi**

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

Applications: **Outdoor**

Typical detector **PD3N-1C** for 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: **IP44, FC: IP54/Class II/CE**

Detection area: h=2,50 m: **Ø 10 m across, 6 m towards, 4 m seated**

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 2500 Lux**

Applications: **Toilets / Lockers rooms / Equipment rooms / Airlocks…**

Typical detector **PD4N-1C-SM** for surface mounting on the ceiling of the **BEG LUXOMAT** brand or technically equivalent and will have the following characteristics:



Degree / protection class: **SM: IP44**

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

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**

Applications: **Parking**

**2- Offices Management, Trays Offices and Meeting Rooms, Circulation and Stairwells:**

The lighting management will be based on **DALI2** technology, according to **IEC 62386** standard. The DALI bus will be used to connect luminaires and presence detectors via controllers or bus interfaces connected to the BMS. The management system will automatically dim the lighting to consider the natural light inflow and will allow the light sources to be completely switched off when unoccupied. This solution will offer the possibility of easily modifying the partitions, without intervention on the luminaires or the wiring, and will have to be evolutionary allowing to anticipate a possible extension to new installations. Each luminaire will be addressed individually, to report the status and defects of each device to the supervision system.

Through the components connected to the BUS, this solution will provide the following characteristics:

2.1**- Management of Offices, Trays Office, and Meeting Rooms**

* Occupancy management by presence or absence detection / Lighting variation, constant lighting threshold
* User overrides by local PB or by "wireless" interface
* Creation of lighting scenarios and/or atmospheres in the meeting rooms for projection or videoconferencing
* Control of air renewal and temperature by information from presence sensors to the HVAC unit
* GTB link

2.2**- Management of Circulation and Stairwells**

* Occupancy management by presence and luminosity detection
* Lowering to the minimum regulatory threshold in case of unoccupation
* In the stairwells, this solution will ensure a level-by-level operation
* BMS link

The selected sensors will be **" Multi-Master "** on **DALI 2** protocol of **BEG LUXOMAT** brand or **technically equivalent** and will have the following technical characteristics:

* Multi-sensor **DALI** type **PDx-BMS-DALI2**

**DALI Multi-Master** technology according to **IEC 62386**, part **103**

Compatible with DALI 2 controllers according to **IEC 62386** part **101/103/304**. Section 0 provides information on room assignment and motion detection on the DALI bus according to **IEC 62386** part **303**. Section 1 provides the LUX values on the DALI bus according to **IEC 62386** part **304**. Parameterization is possible via a multi-master application controller from any manufacturer on **DALI 2** protocol.

**PD11-BMS-DALI2-FC**: Ø 9 m across, Ø 6 m towards, Ø 3 m seated

Applications: **Offices / Trays Offices**

**PD4N-BMS-DALI2-SM/FC**: Ø 24 m across, Ø 8 m towards, Ø 6,40 m seat activity

Applications: **Meeting rooms / Halls / Parking**

**PD4N-BMS-DALI2-C SM/FC**: 40 x 5 m across, 20 x 3 m towards, Ø 8 m vertical

Applications: **Circulation**

**LC-Mini-120°-BMS-DALI2**: 12 m across, 3 m towards

Applications: **Stairs**

