**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- Small premises Management:**

Automatic operation by presence and luminosity detector

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-FT** 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, Ø 6 m towards, Ø 4 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**

**2- Management of the Gymnasium, Sports Halls, Circulation and Stairwells:**

An intelligent lighting management system will be installed in the amphitheaters, ensuring that the light sources are completely switched off when not in use. The system will ensure modularity of operation depending on the activity, conference, projection, etc., and should be scalable to allow for possible extension to new facilities. The principle will be based on an **Addressable DALI BUS**. Commissioning and modifications will be carried out via dedicated programming software, connected locally, or via a WEB interface on the LAN or WLAN network and will be at the manufacturer's expense.

The system is either stand-alone or can be linked to GTB system by interfacing the DALI protocol to the BACnet protocol.

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

2.1**- Management of Circulation, Halls and** Stairwells

* Occupancy management by presence and lighting detection
* The lighting management system will offer the possibility to create an intelligent operation of the corridors, thus allowing energy savings. Only the occupied area will be switched on at the required value, and in anticipation, the upstream area will be switched on at reduced power
* In stairwells, this solution will ensure level by level operation





2.2**- Gymnasium and Sports Hall Management**

* Occupancy management by absence detection - Lighting by control panel, not accessible to the public
* Lighting variation, constant lighting threshold for training thresholds only
* Fixed thresholds, without lighting regulation for competition
* Modularity according to the activities practiced, ½ court or full court, management of a climbing wall...
* Control of air renewal by information from the presence sensors to the HVAC package

The system selected will be the **DALISYS** brand **BEG LUXOMAT** or **technically equivalent** comprising the following equipment:

* **DALI BUS power supply** type **PS-DALISYS-USB-REG**

230V AC / 16V DC DALI BUS / 210mA / 300 m BUS max

Up to 64 participants on the BUS (DALI luminaires / Multi-sensors / PB interface…)

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

* **DALI router** type **ROUTER-DALISYS-REG** or **ROUTER-DALISYS-BACnet-REG** if attached to the BMS

5V DC power supply (power supply included)

LAN connection via ETHERNET

Up to 4 DALI power supplies connected via USB to one router / max. 100 routers per installation

* **4G WIFI LTE Router** type **LTE-ROUTER-RUT950-DALISYS**

Power supply from 230V AC mains sockets

Connection to the LAN network via Ethernet of DALI-SYS components and Ethernet switch

WIFI connection for the commissioning of the project by the builder

LTE connection with up 2 SIM cards for remote maintenance by the manufacturer

* **DALI multi-sensors** type **PDx-DALISYS**

Power supply and communication via DALI BUS 16V DC

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

Applications: **Circulation**

**PD4N-DALISYS SM/FC/FM**: Ø 24 m across, Ø 8 m towards, Ø6,40 m seated

Applications: **Sports halls / Halls**

**LC-PLUS-DALISYS**: 16 m across, 9 m towards, 2 m vertical

Applications: **Stairs**

**PD4-DALISYS-GH-SM**: Ø 30 x Ø19 m towards

* Applications: **Gymnasium**
* 
* **DALI PB interface** type **BM-DALISYS-4W**

Power supply and communication via DALI BUS 16V DC

4 independently interfaceable binary inputs

Can be combined with all manufacturers’ pushbuttons

* **Relay Module Interface** type **RM-DALISYS-1C-REG**

Power supply and communication via DALI BUS 16V DC

Switching power: 3000W Cos ϕ = 1/1500VA Cos ϕ = 0.5 /300 W LED sources

