

Lighting Controls Design Guide

OFFICE

Lighting controls play a significant role in creating energy-efficient and positive work environment. Lumos Controls has been assisting building communities in creating spaces as they wish- energy-efficient and lively. We thought that sharing our experiences and best practices will be helpful for your next projects. This guide will brief you on how we design lighting control strategies for an office space with a focus on:

- Tasks and Comfort
- Easy Reconfiguration
- Cost-effectiveness
- Ease of Use

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Office Buildings Possibilities

With Us- Simple, Smarter and Energy-efficient!

We have a device portfolio that is simple to install and easy-to-use. Energy efficiency and comfort are crucial in lighting, and our lighting controls help you achieve them.

Our future-proof solution helps you save energy, enhance the ambiance, and guarantee productivity through easy deployment of lighting control strategies. We also provide detailed analytical reports on energy utilization, occupancy patterns, and device usage. You will maximize ROI with better employee productivity and energy savings. The solution easily integrates with the building management system, bringing added benefits.

Design

Considerations

The following factors need special attention

- Size of the space
- Type of office (cubicle or open plan)
- Number of workspaces
- Availability of windows for daylight

Did you Know?

Switching off electrical appliances at night and on weekends will reduce energy consumption by **75% annually.**



Lighting Control Strategies

for Each Spaces

Controls	Code Summary (IECC)	Enclosed Office	Open Plan Office	Conference Rooms	Corridors	Lobby
Manual/ Auto ON to <50% intensity	Automatically controlled spaces must be controlled to automatically turn the lighting on to not more than 50% power.	Yes		Yes		
Auto ON to 100% intensity	Automatically controlled spaces are allowed to turn on to full.		Yes		Yes	Yes
Manual OFF	Areas with occupant sensors shall incorporate a manual control to allow occupants to turn fixtures off	Yes		Yes		
Automate Light Level via Occupancy	Occupancy sensors shall automatically reduce lighting		Yes		Yes	
Auto OFF via Vacancy Sensor	Fixtures must automatically turn off within 20 minutes of all occupants leaving the space.	Yes	Yes	Yes	Yes	Yes
Light Dimming Control	Spaces shall have manual control to reduce the connected lighting load uniformly by not less than 50%					Yes
Auto Receptacle Control	50% of all receptacles, and 25% of branch circuit feeders installed for modular furniture, shall be automatically turned off by an occupant sensor within 20 minutes of all occupants leaving the space.	Yes	Yes	Yes		
Daylight Harvesting	Daylight-responsive controls shall be provided.	Yes	Yes	Yes	Yes	Yes
Emergency Lighting Circuits		Yes	Yes	Yes	Yes	Yes

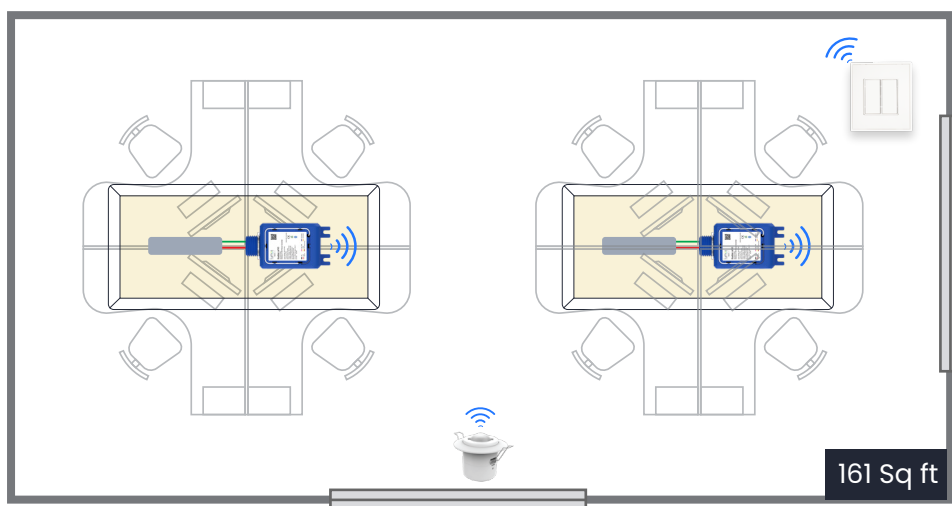
Did you Know?

Higher color temperatures (4,600K or more) appear blue-white and are called cool or daylight colors




Mid-range color temperatures (3,100K–4,600K) appear cool white

Lower color temperatures (up to 3,000K) range from red to yellowish-white in tone and are called warm colors

Cabins/Enclosed Office Spaces



147.6ft is the device-to-device BLE communication distance with LoS. The actual range depends on the installation conditions and varies between 30ft - 130ft.

 Motion/ Light Sensor
  0-10 Fixture Controller
  Switch

Enclosed office spaces might have only a working table or chair. People won't enter and leave the room frequently. Appropriate lighting is required on work desk to keep the occupant active and alert. Also, lighting above the seating should reduce screen glares.

We suggest

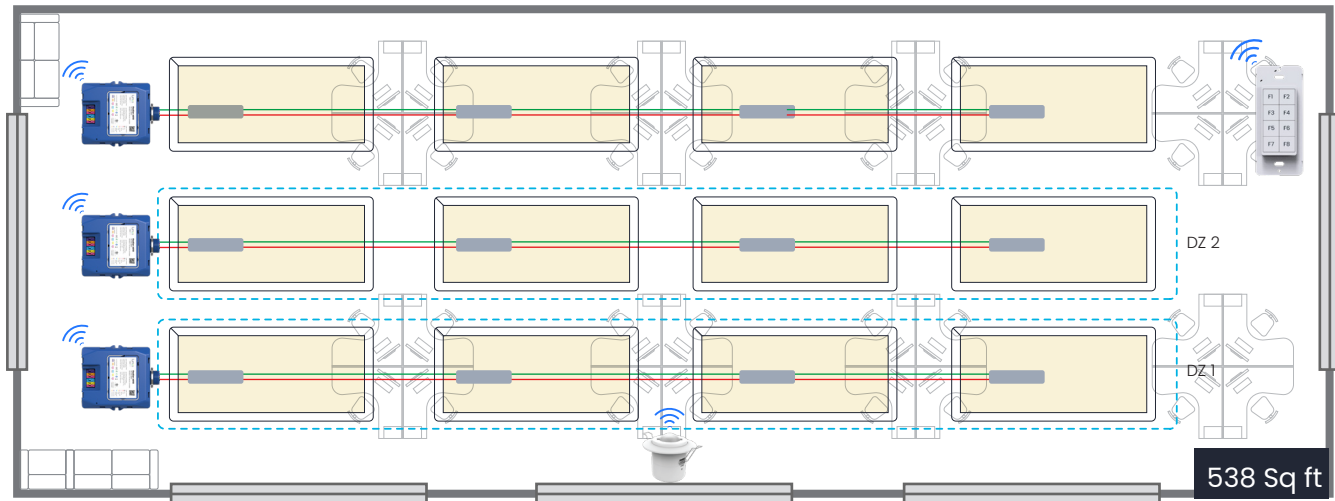
- Task tuning to enhance visual comfort
- Vacancy sensing for maximizing energy savings
- Daylight harvesting to boost productivity and enhanced energy savings

Pro tip:

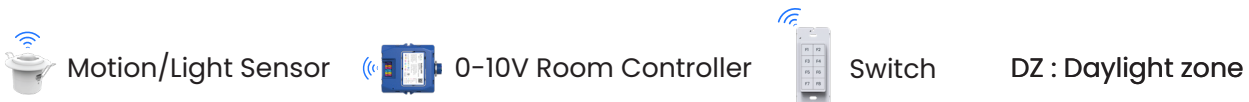
For you to design an ideal lighting environment for office cubicle all you need is our room controller and sensors.

Use controller to create an appropriate light level for different tasks. Use controllers and vacancy sensors to detect vacancy and turn OFF devices automatically. If the room gets enough daylight incorporate light sensors and controllers for open-loop sensing. On the contrary, if you want to set a required light level, use light sensors and controllers for closed-loop sensing.

Open-plan Offices



147.6ft is the device-to-device BLE communication distance with LoS. The actual range depends on the installation conditions and varies between 30ft - 130ft.



An open-plan office will have long rows of desks with little or nothing dividing them. It will have circulation areas, lounges with couches or open kitchen areas with plenty of seating. Long rows of desks need cool lighting to keep employees active, and the circulation or relaxing spaces need warm lighting. Also, automated lighting controls are required for safety and energy savings.

We suggest

- Task lighting for alertness, and visual comfort
- Occupancy/vacancy sensing for safety and energy savings
- Daylight sensing to improve concentration, productivity and enhanced energy savings

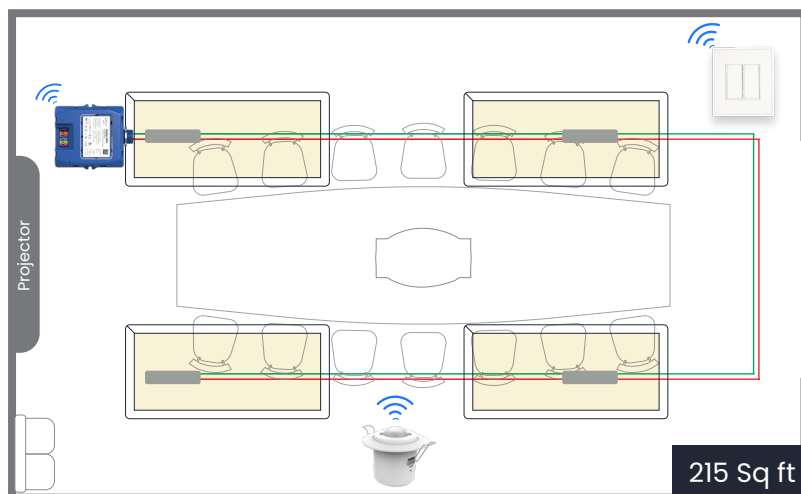
Pro tip:

For you to design an open plan office lighting, all you need is our room controllers, sensors and switches.

Use controllers to set required light level for tasks. Occupancy sensors and controllers work together to detect human presence to turn lights ON automatically. Controllers and vacancy sensors detect vacancy and turn OFF devices. If the room gets enough daylight, incorporate light sensors and controllers for open-loop sensing. On the contrary, if you want to set a required light level, use light sensors and controllers for closed-loop sensing.



Conference Rooms



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Motion/Light Sensor



0-10V Room Controller



Switch

Conference rooms hold a significant place in your workspace. It is where ideas and information are shared and decision-making happens. The space will be equipped with some audio-visual equipment, whiteboarding and seating.

The lighting should create a professional, pleasant, and private ambiance. The seating and screen or white board requires different lighting level.

We suggest

- Task lighting for alertness, and visual comfort
- Vacancy sensing for energy savings
- Daylight sensing to improve concentration and enhanced energy savings

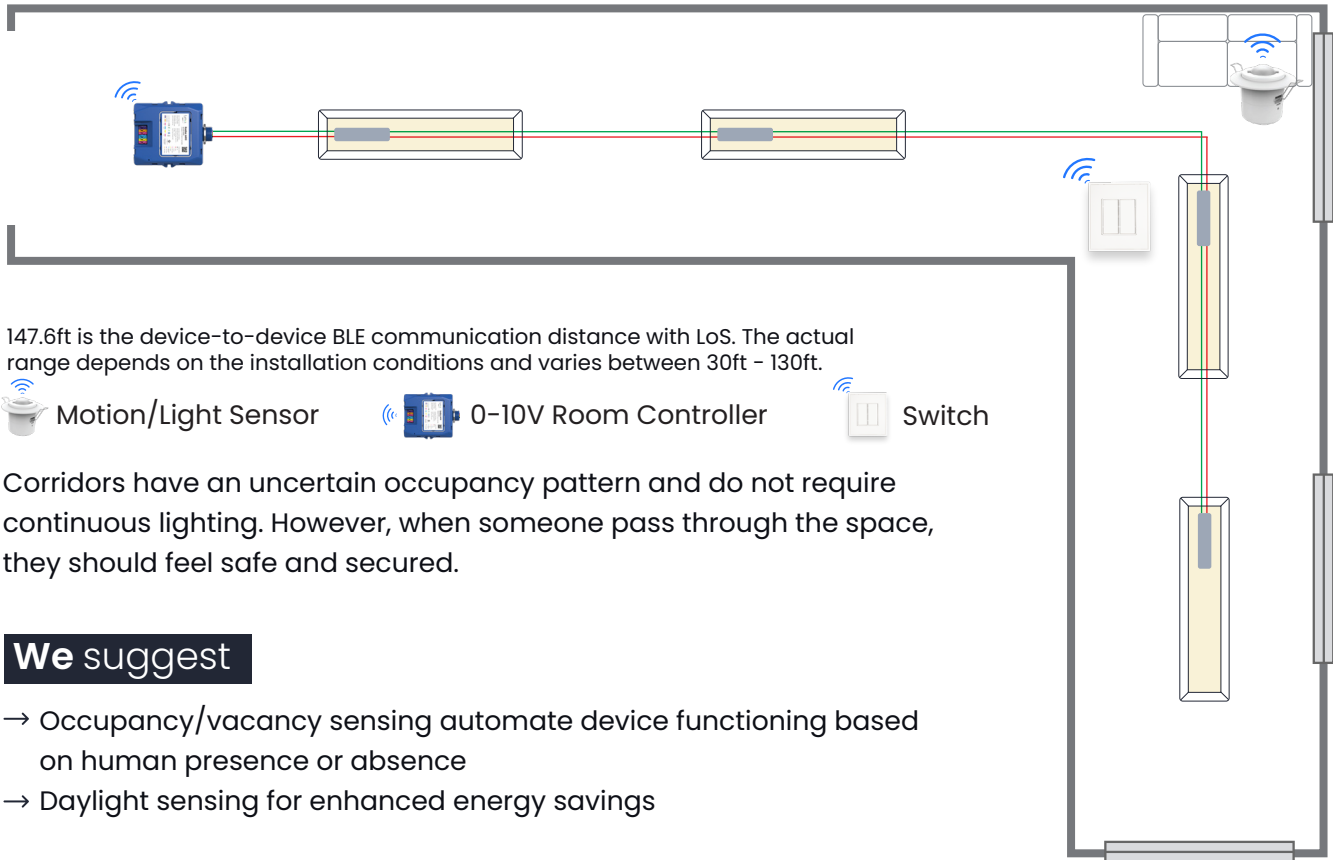
Pro tip:

For you to design a comfortable conference room lighting, all you need is our room controllers, sensors and switches.

Use controller to set required light level for tasks. Use vacancy sensors and controllers to detect vacancy and turn OFF devices automatically. If the room gets enough daylight incorporate light sensors and controllers for open-loop sensing. On the contrary, if you want to set a required light level, use light sensors and controllers for closed-loop sensing.



Corridors



We suggest

- Occupancy/vacancy sensing automate device functioning based on human presence or absence
- Daylight sensing for enhanced energy savings

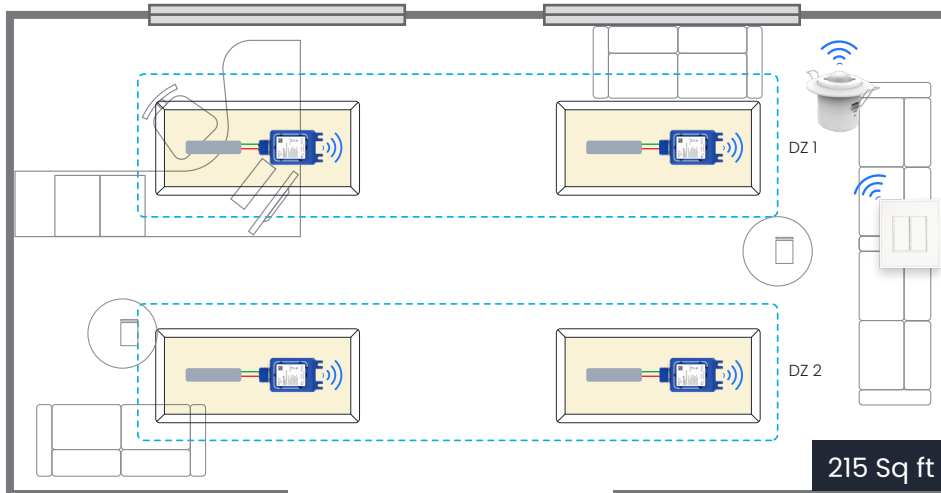
Pro tips:

For you to design a safe corridor lighting, you will require our controller and sensors.

Install our controller to create appropriate light levels for different tasks. Occupancy sensors and controllers work together to detect human presence to turn lights ON automatically, and vacancy sensors detect vacancy and turn OFF devices. If the corridor gets enough daylight incorporate light sensors and controllers for open-loop sensing. On the contrary, if you want to set a required light level, use light sensors and controllers for closed-loop sensing.



Lobby



147.6ft is the device-to-device BLE communication distance with LoS. The actual range depends on the installation conditions and varies between 30ft - 130ft.



A lobby consist of entrance, reception, and lounge area. Lobby is the welcoming area where people meet the front-office and transit to differnt office spaces. This area has to be lively and cozy.

We suggest

- Task tuning to create appropriate, glare-free lighting
- Scheduled scenes will keep the space lively and relaxed
- Vacancy sensors ensure safety and energy savings
- Daylight harvesting ensures safety, increased alertness and enhanced energy savings

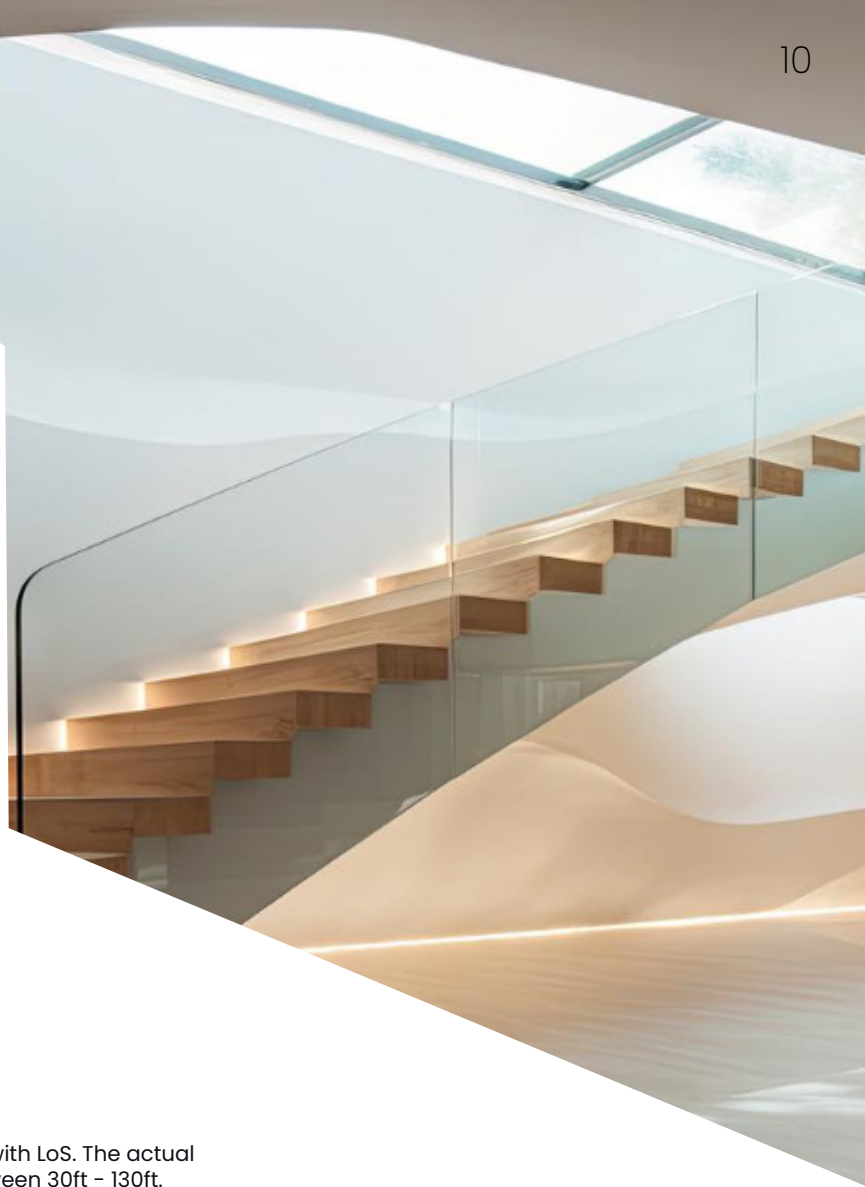
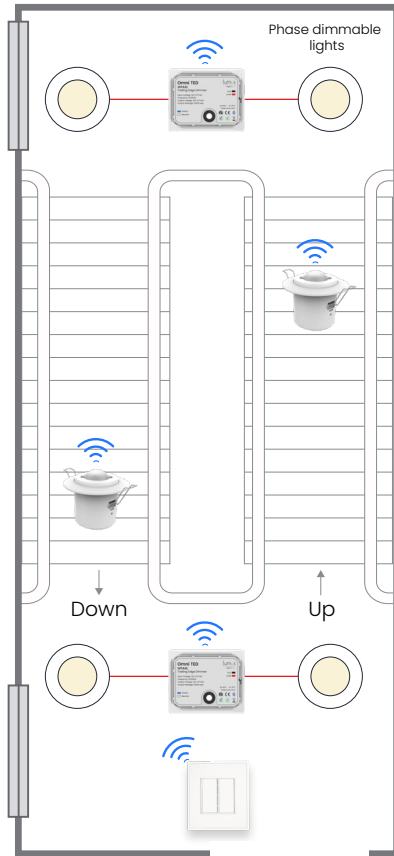
Pro tips:

To design a lively and comfortable lobby, you will only require controllers, sensors and switches.

Easily create task lighting and schedule scenes using controllers. When occupants leave the space, vacancy sensors together with controllers will automate device functioning. If the room gets enough daylight incorporate light sensors and controllers for open-loop daylight harvesting. On the contrary, if you want to set a required light level, use light sensors and controllers for closed-loop daylight harvesting.



Stairwell



147.6ft is the device-to-device BLE communication distance with LoS. The actual range depends on the installation conditions and varies between 30ft - 130ft.



People frequently pass through the stairwell and so it has to be properly designed for maximum energy savings and adequate light level. Proper illumination enhances visibility, reduces the risk of accidents, and contributes to the overall atmosphere of the space

We suggest

- Task tuning to enhance visual comfort
- Motion sensing for maximizing energy savings
- Daylight harvesting if the space has daylight availability to enhance energy savings

Pro tips:

For you to design an ideal lighting environment for stairwells with phase dimmable lights, all you need is our phase dimmer and sensors. Use phase dimmer to create an appropriate light level for different tasks. Use dimmer and motion sensors to turn ON or OFF light devices automatically based on the occupancy. If the stairwell gets enough daylight, incorporate light sensors for open-loop sensing. On the contrary, if you want to set a required light level, use light sensors for closed-loop sensing.

Grow Seamless

Optimize building operations with our advanced reports and analytics.

- Understand occupancy patterns
- Energy utilization
- Device usage

Emergency monitoring dashboards ensure occupant safety 24*7

[Available only with our DALI lighting control system]



Device Placement Guidelines

Device placement considerations are crucial for optimizing the performance and functionality of devices in various scenarios. Here are some key points to consider:

1. **Signal Strength and Distance:** Keep in mind that signal strength tends to weaken as the distance between devices increases. Therefore, it is essential to consider the proximity of devices to ensure reliable communication. Maintain an appropriate distance between devices to ensure optimal signal strength.
2. **Metal Structures:** When devices are placed near metal structures, it is important to ensure that the Bluetooth Low Energy (BLE) antennas have a clear line of sight with nearby devices. This can be achieved by creating small holes in the metal enclosure to allow the BLE antennas to maintain connectivity.
3. **Sensor Mounting Guidelines:** Install sensors in a way that protects them from damage, vandalism, and accidents. Avoid placing sensors near heating sources that can cause rapid temperature changes within the detection or measurement zone. This includes air vents, fan heaters, incandescent lamps, and halogen lamps.
4. **Interference-Free Detection Range:** Ensure that the detection range of sensors is free from interferences that can affect their performance. Identify and mitigate potential sources of interference to maintain accurate and reliable measurements.
5. **Light Sensor Placement:** When using light sensors, make sure they only measure indirect light (light reflected from other surfaces) to avoid measurement distortions caused by direct sunlight. This ensures accurate and consistent measurement results.
6. **Scaling Up for Large Installations:** For large installations, establish a proper building hierarchy before commissioning the devices. Use Lumos Controls app, which allows devices to be divided among Buildings, Floors, and Zones. Choose the appropriate Zone for each device during commissioning. Note that devices commissioned in a Zone can only communicate with other devices in the same Zone. It is recommended to use a single phone for commissioning and configuring devices within a specific Zone to avoid multiple sync attempts to the cloud.
7. **Proximity for Configuration:** When creating, deleting, or editing Groups, Scenes, Schedules, etc., ensure that you are within the Bluetooth Low Energy (BLE) range of the related control devices. This proximity is necessary for seamless configuration and synchronization.

By considering these device placement considerations, you can optimize the performance, reliability, and functionality of your devices in various environments and scenarios.





Our ecosystem helps you to create an ideal office building, energy-efficient and future-proof, in just a few clicks.

Know it here

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Information security certified

20321 Lake Forest Dr D6,
Lake Forest, CA 92630

 www.lumoscontrols.com
 +1 949-397-9330