

## Lighting Controls Design Guide

# FACTORY

A factory, manufacturing plant or a production plant is an industrial facility, often a complex consisting of several buildings filled with machinery, where workers manufacture items or operate machines which process each item into another. Lighting is an imperative part of a factory as it will enable you to monitor the processes in a better way and detect problems early. Good lighting will help in improving the productivity and concentration span of the workers.

Lumos Controls has been assisting building communities create 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 retail with a focus on

- Reduce maintenance cost
- Refresh the operational efficiency of a given space
- Increase productivity
- Improve workers' safety

# Warehouse Buildings Possibilities

With Us- 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 enhanced learning experience through easy deployment of lighting control strategies. We also provide detailed analytical reports on energy utilisation, occupancy patterns, and device usage. You will maximise ROI with better energy savings. The solution easily integrates with the building management system, bringing added benefits.



# Lighting Control Strategies

## for Each Spaces

Control Requirement	Enclosed Office	Storage Area	Maintenance Room	Lobbies	Pantry
Manual/Auto ON to <50% intensity	Yes			Yes	
Auto ON to 100% intensity	Yes	Yes	Yes	Yes	Yes
Manual ON/OFF	Yes	Yes	Yes	Yes	Yes
Automate Light Level via Occupancy	Yes	Yes	Yes	Yes	Yes
Auto OFF via Vacancy Sensor	Yes	Yes	Yes	Yes	Yes
Light Dimming Control			Yes	Yes	
Auto Receptacle Control	Yes			Yes	
Daylight Harvesting	Yes	Yes		Yes	
Emergency Lighting Circuits	Yes	Yes	Yes	Yes	Yes

## Did you Know?

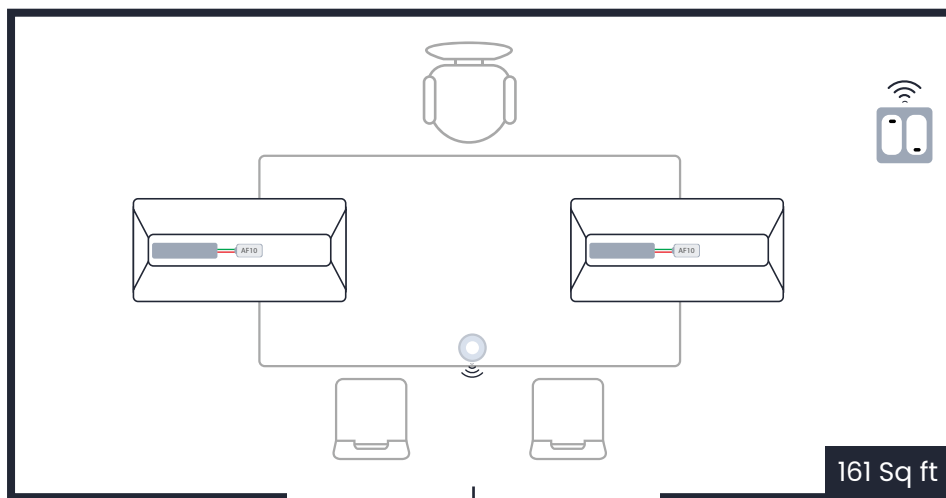
**Higher colour temperatures (4,600K or more)** appear blue-white and are called cool or daylight colors

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

**Lower colour 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  0-10V Fixture Controller  Switch

The enclosed offices in the warehouse are the organisational management area where processes like administration and customer service occur. The lighting should be appropriate to increase the occupants' visibility, safety, and productivity.

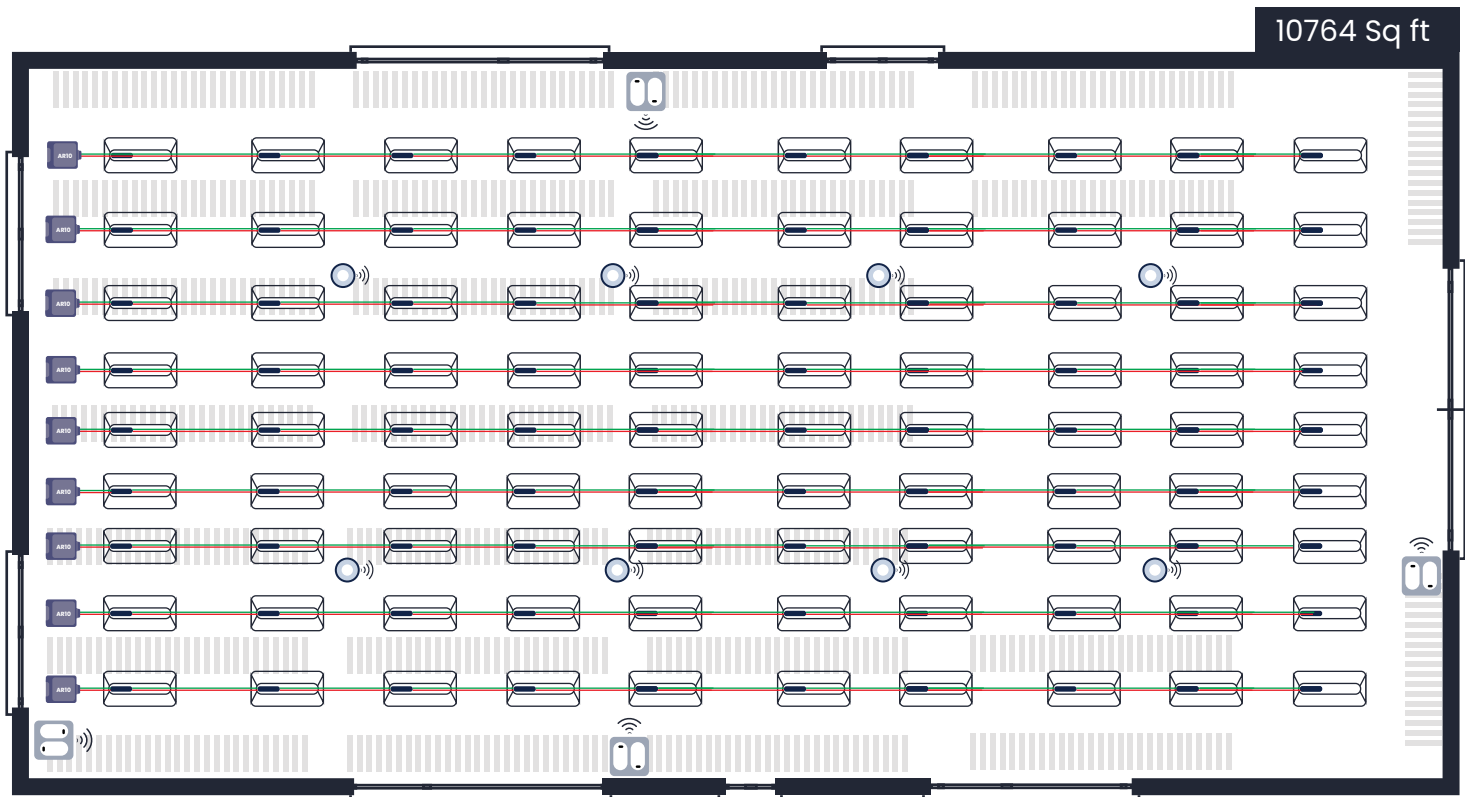
### We suggest

- Occupancy Control for energy savings and convenience
- Daylight Control for comfort and energy savings

### Pro tip:

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 daylight harvesting. On the contrary, if you want to set a required light level, use light sensors and controllers for closed-loop daylight harvesting.

# Storage Area



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.

 Microwave/Motion/Light Sensor     AR10 0-10V Room Controller     Switch

These long and narrow areas have high shelves and are always functional, requiring glare-free and comfortable occupants.

## We suggest

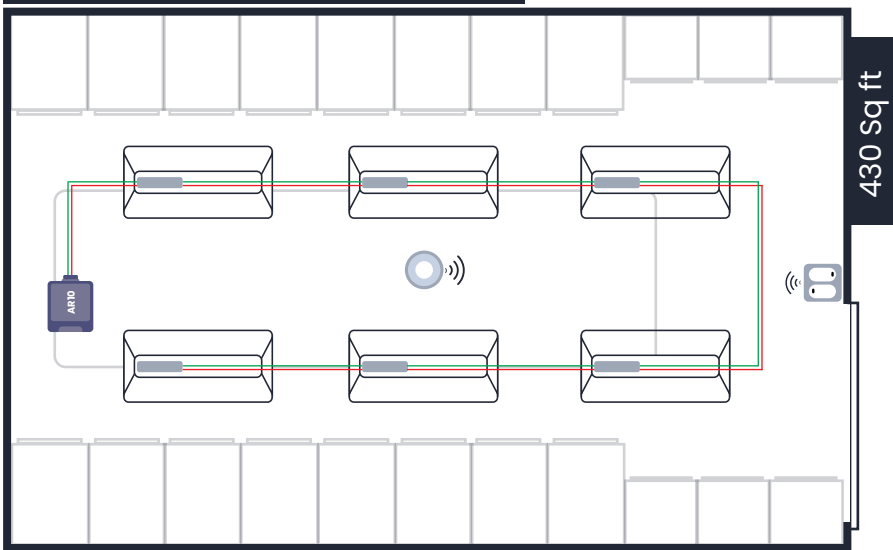
- Task tuning for visual comfort
- Occupancy Control for safety and energy savings
- Daylight Control in areas with skylights for comfort and energy savings

### Pro tip:




You can use controllers to implement high-end trim to create glare-free and comfortable lighting. 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.



## Maintenance Room



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
-  0-10V Room Controller
-  Switch

The maintenance room is a significant area in a warehouse where major work happens. Hence, it is essential to have the appropriate light level to ensure safety and comfort.

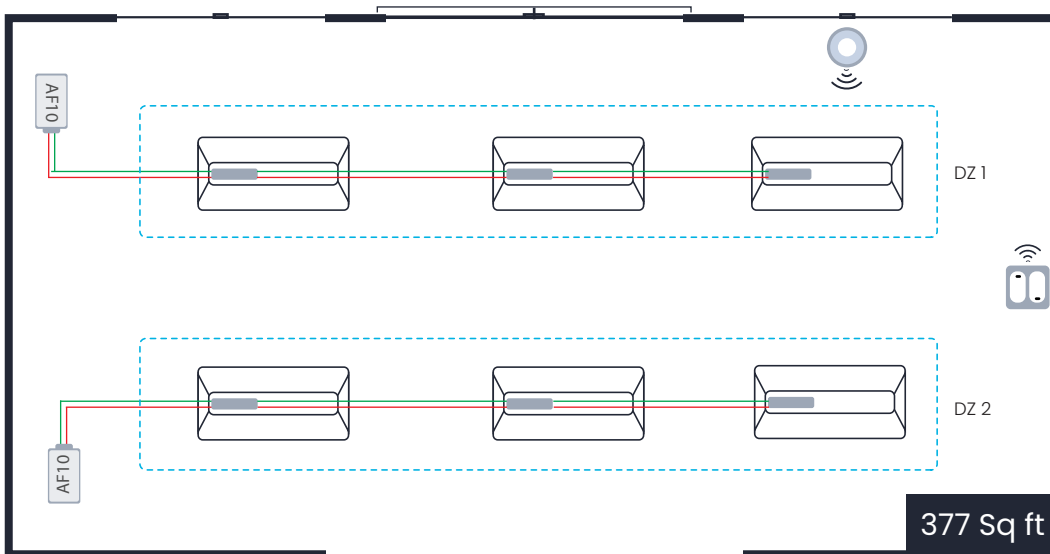
### We suggest

- Task tuning for visual comfort
- Occupancy Control for safety and energy savings

### Pro tip:

You can use controllers to implement high-end trim to create glare-free and comfortable lighting. 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.

# Lobbies



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 Motion/Light Sensor  AF10 0-10V Fixture Controller  Switch **DZ** :Daylight zone

Lobbies are a place where occupants are engaged in communication and tasks. The right lighting and controls will make the space feel warm, welcoming and navigate easily. The lighting should enhance employee productivity and save a considerable amount of energy.

## We suggest

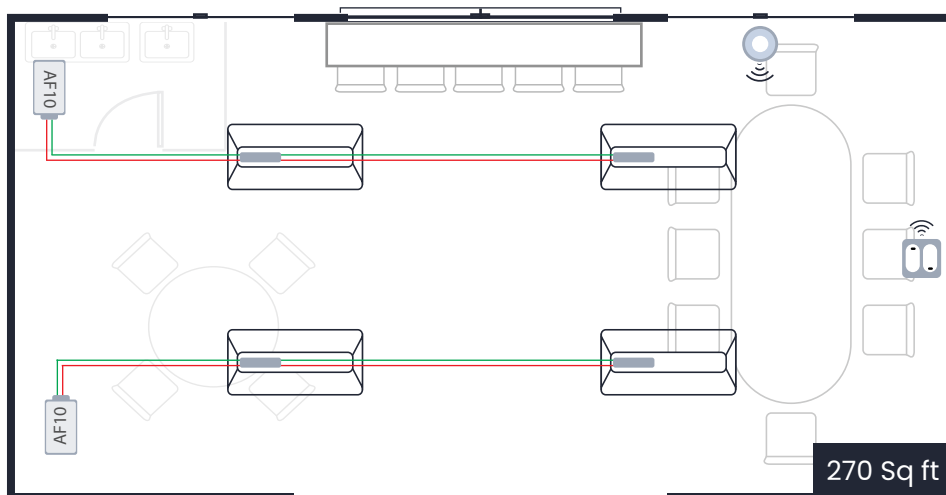
- Task tuning for glare-free and comfortable lighting
- Occupancy Control for energy savings
- Daylight Control for productivity and energy savings

### Pro tips:



You can use controllers to implement high-end trim to create glare-free and comfortable lighting. 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 daylight harvesting. On the contrary, if you want to set a required light level, use light sensors and controllers for closed-loop daylight harvesting.



# Pantry



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     0-10V Fixture Controller     Switch

The pantry serves as a gathering spot for employees during breaks, lunch, and events, much like a family kitchen. The lighting in this space must create a comfortable and lively ambience.

## We Suggest

- Task tuning for visual comfort
- Occupancy Control for safety and energy savings

### Pro tips:

You can use controllers to implement high-end trim to create glare-free and comfortable lighting. 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.

Use our mobile app to enjoy maximum convenience and flexibility. You can wall mount our kinetic/ remote switches for ease of use. Our controllers meet emergency lighting requirements to ensure your building safety. Implement plug load controls for maximising energy savings.

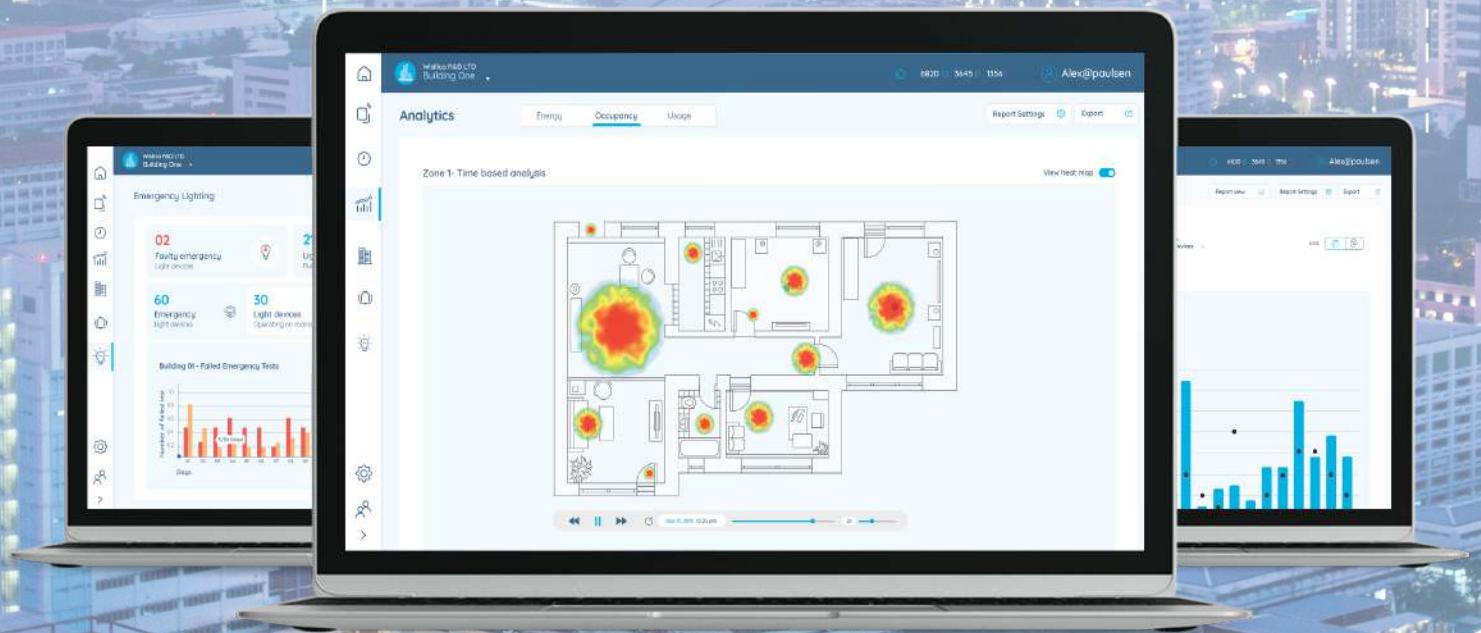


# Grow Seamless

Optimise building operations with our advanced reports and analytics.

- Understand occupancy patterns
- Energy utilisation
- Device usage

Emergency monitoring dashboards ensure occupant safety 24\*7



# 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.





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