aleo™
LED LIGHTING

Wireless Lighting Controls

Specification and Application Guide

A New Era of Lighting

Aleo Lighting is paving the way in a new frontier in energy efficiency, demand reduction, and smart lighting controls. Leveraging the benefits of LED technology and aggressively implementing new wireless controls technology, the Aleo team is developing new innovative solutions to achieve greater energy savings, smarter systems, and myriad of non-energy benefits, such as improved facility operations, improved safety and security, more access and control of a building's lighting system. As LED performance and savings potentials plateau, smarter networked lighting controls offer a new frontier of opportunities.

Wireless Controls | Introduction

The Age of Controls

Benefits of **Wireless Controls**

- Deeper Energy-Savings
- Greater Demand Reduction
- Increased Utility Incentives
- Smarter Lighting Systems
- Great for Retrofit and New Construction
- Easy and Simple Start-up and Provisioning
- Reduced Labor on Installation
- Scalability and Interoperability
- IoT Capable

Choosing and **Comparing Controls**

Selecting the right control system can be a confusing and risky undertaking. Just as we've curated and developed the best technology and platforms in LED lighting, we've also taken the same approach to controls. We make sure our control systems are simple, easy to use, feature-rich, and reliable.

We're cutting the wires, the complication, and politics out of controls. As your anti-conglomerate lighting partner, we aim to democratize controls and bring you a straight forward, integrated controls system.

Wireless Controls | Comparison Guide

Sensor System Comparison

	Aleo Blue	EasySense	SmartCast	Vive
Technology	Bluetooth Mesh	Zigbee	Zigbee	Proprietary RF
Grouping	✓	✓	✓	✓
Zoning	✓	✓	✓	✓
Cost	$	$$	$$$	$$$$
Wireless Dimmer Switch	✓	✓	✓	✓
Interoperable	✓	✗	✗	✗
Scalable	✓	✗	✗	✓
Future Proof	✓	✗	✗	✗
Ease of Commissioning	Very Easy	Difficult	Difficult	Moderately Easy
Dedicated Remote Needed?	✗	✓	✓	✗
Gateway Needed?	✗	✗	✗	✓

Controls and Luminaries

Our luminaires, retrofit kits, and lighting solutions can come fully installed and integrated with wireless lighting controls. Save labor and time with systems that are ready to go. No need for complicated controls start-up and engineering. Our sensors come installed and able to network with auxiliary devices wirelessly, saving you significant costs.

Wireless Controls | Compatibility Guide

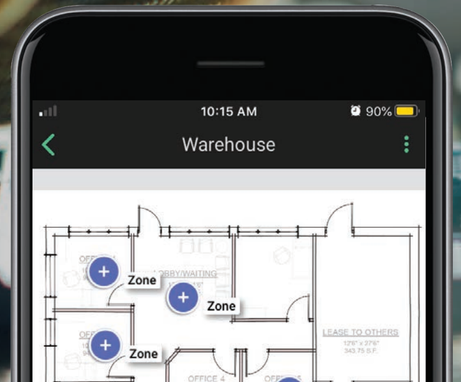
Luminaire Compatibility Guide

	LT-CD	LTR	LLS	SLB	XLB	SCB
	Troffer	Troffer Retrofit	Strip	High Bay	High Bay	High Bay
Aleo Bluetooth Available?	Yes	Yes	Yes	Yes	Yes	Yes
PIR Occupancy Sensor Available?	Yes	Yes	Yes	Yes	Yes	Yes
Lighting Control Node Available?	Yes	Yes	Yes	No	No	No
Wireless Dimmer Switch Available?	Yes	Yes	Yes	Yes	Yes	Yes
Mounting	Fixture Integrated	Fixture Integrated	External Fixture End Mount or Fixture Integrated	External Fixture End Mount	External Fixture End Mount or Fixture Integrated	Fixture Integrated
						

Wireless Bluetooth Controls

The Future is Blue.

We at Aleo Lighting embrace innovation and change. That is why we are adopting Bluetooth Mesh in a big way. We are champions of the potential that this technology can bring to lighting. Ubiquitous in consumer electronics, the scale, cost effectiveness, performance, and functionality is tried and true. Bluetooth brings the benefits of being wireless, interoperable, scalable and future-proof.



Wireless Controls | Aleo Bluetooth

Why Aleo Bluetooth?

Features:

- Fastest Low Power Communication
- Scalability to Thousands of Devices
- No Single Point of Failure
- Advanced Encryption Standards
- Cutting Edge Device Authentication
- Self-healing Mesh Network
- Over the Air Updates

Benefits:

- Reduced latency
- Reliable
- High Performance
- Secure
- Future-proof
- Easy to Commission / Provision
- No Special Remote to Commission

Aleo Bluetooth

Advantages:

- Intuitive and User-Friendly Web and iOS apps
- No Specialized Training Expertise Needed
- Optimized for Commercial Spaces of Any Size
- No Additional Wiring or Central Gateway
- Customizable Lighting Control Parameters
- Future-proof, with Software Updates
- Multiple Zone Configurable
- Built-In Scenarios + Customization

Features

- Lighting Zones / Grouping
- Manual Control
- Zone Linking
- Per Luminaire Daylight Control
- Per Zone Daylight Control
- Occupancy Sensing
- Vacancy Sensing

Wireless Controls | Aleo Bluetooth

Features and Functions

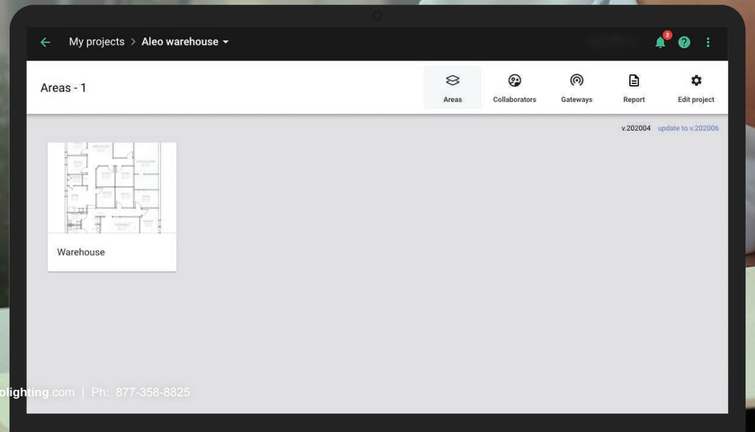
Wireless Provisioning	Provision Lighting Controls within the Bluetooth mesh network using any iOS device.
High End Trim	The upper limit of the light level that can be reached with automatic or manual control.
Low End Trim	The lower limit of the light level that can be reached with automatic or manual control.
Time Delay	The time for which the light is maintained at the defined level when switched on. The timer is reset each time motion is detected.
Daylight (Harvesting)	Use of ambient daylight to automatically dim light levels.
Occupancy Sensing	All luminaires are switched on automatically when motion is detected and switched off automatically when no motion is detected.
Zoning / Grouping	Create Zones in order to operate multiple luminaires in a similar fashion or assign Control Scenarios to a group of luminaires.

Planning and Pre-Commissioning

Pre-Commissioning via a desktop makes on-site commissioning a lot easier and faster. Remotely prepare a retrofit project with the use of our browser-based app. Upload floor plans, define individual lighting zones, and choose lighting control scenarios saves time in the field.

Planning

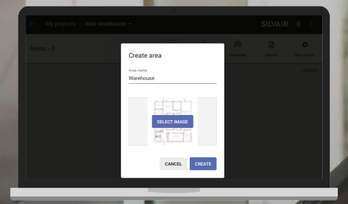
Web Application | Browser-based



Wireless Controls | Planning

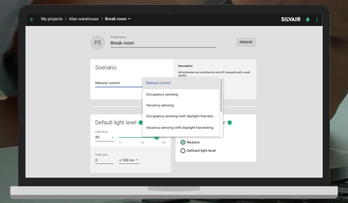
1 Create **Project** and Add **Collaborators**

2 Create **Areas** and Upload **Floor Plans**



3 Add **Lighting Zones**

4 Define **Control Profiles**



Standard Control Profiles:

- Manual Control
- Vacancy Sensing
- Vacancy Sensing with Daylight
- Occupancy Sensing
- Occupancy Sensing with Daylight
- Photocell
- Multiple Scenes
- Central Control

Wireless Controls | Implementation

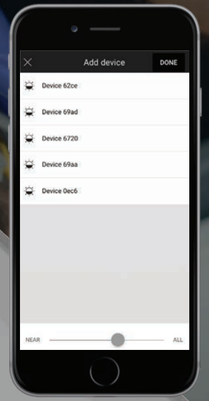
Implementation and Provisioning

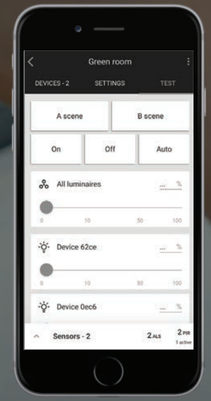
Onsite commissioning is intuitive and easy. Add lighting devices to the Bluetooth mesh network using any iOS device.

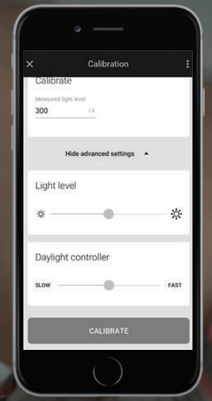
Customize and calibrate lighting control parameters during and after the commissioning process. Define scenes for specific areas, tasks, and activities.

Implementation

Mobile Application | IOS







1 **Add Devices** to Your Connected Lighting Network

2 (Optional) Add EnOcean **Bluetooth Dimmer Switch**

3 (Optional) **Calibrate** Sensor

4 **Test** Your Zone

Products and Ecosystem

Interior Commercial Office Application

Office buildings offer tremendous energy savings potential when implementing lighting controls. The density of luminaires in typical office interiors make wireless controls ideal. A smarter lighting system can be achieved by utilizing controls to dim and turn off lights when unoccupied and/or sufficient ambient daylight is present.

Aleo's offering allows you to achieve deep energy savings with luminaire-level occupancy sensors with daylight, luminaire-level nodes that can be grouped with sensors, and wireless dimmer switches. The system can be commissioned universally with a PC and iOS device.

Wireless Occupancy Sensor

Model No: -OSDL/BT

- Wireless Commissioning
- Wireless Grouping and Zoning
- PIR Occupancy Sensing
- High / Low End Trim
- Daylight Harvesting
- Time Delay and Fade/Ramp Time
- Multi-level Dimming
- Scene Control

Wireless Control Node

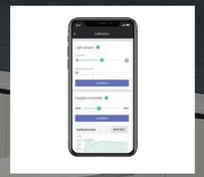
Model No: - WLC/BT

- Wireless Commissioning
- Wireless Grouping and Zoning
- High / Low End Trim
- Time Delay and Fade/Ramp Time
- Multi-level Dimming
- Scene Control

Wireless Dimmer Switch

Model No: ESRPB-W-EO | EDRPB-W-EO

- Wireless Control of devices
- On/Off Control
- Continuous Dimming Control
- No AC or Battery Power Needed
- Powered by Kinetic Energy
- Single or Double Rocker Available
- Scene Programming Available



Commissioning App

Your iPhone or iPad

- Use iOS Smart Phone to Commission Devices
- No Dedicated Remote Needed
- Easy to Use Interface
- Fast Device Identification and Grouping

Wireless Controls | Ecosystems

Products and Ecosystem

Industrial Warehouse / Manufacturing Application

Industrial buildings such as warehouses and manufacturing facilities are ideal for controls. High lumen output luminaires can be dimmed and turned off based on occupancy and ambient daylight through skylights or dock doors. Wirelessly grouped zones and aisles allow for a row of luminaires to turn on/off in synchrony with each other improving safety and productivity.

Aleo's offering allows you to achieve deep energy savings with luminaire-level occupancy sensors with daylight and wireless dimmer switches. The system can be commissioned universally with a PC and iOS device.

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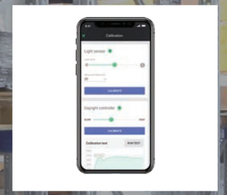

Commissioning App

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Products and Ecosystem

School / Classroom Application

Schools and classrooms offer great energy savings opportunities when implementing lighting controls. A smarter lighting system can be achieved by utilizing controls to dim and turn off lights when unoccupied and/or sufficient ambient daylight is present. Wireless dimmers allow educators to adjust lighting according to the needs of the curriculum.

Aleo's offering allows you to achieve deep energy savings with luminaire-level occupancy sensors with daylight, luminaire-level nodes that can be grouped with sensors, and wireless dimmer switches. The system can be commissioned universally with a PC and iOS device.

Wireless Controls | Ecosystems

Wireless Occupancy Sensor

Model No: -OSDL/BT

- Wireless Commissioning
- Wireless Grouping and Zoning
- PIR Occupancy Sensing
- High / Low End Trim
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- Time Delay and Fade/Ramp Time
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- Scene Control

Wireless Control Node

Model No: - WLC/BT

- Wireless Commissioning
- Wireless Grouping and Zoning
- High / Low End Trim
- Time Delay and Fade/Ramp Time
- Multi-level Dimming
- Scene Control

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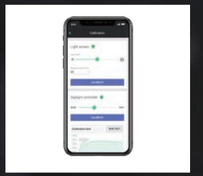

Commissioning App

Your iPhone or iPad

- Use iOS Smart Phone to Commission Devices
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Products and Ecosystem

Self Storage Application

Self Storage facilities are prime candidates for energy savings potential when implementing lighting controls. With prolonged vacancy times and the need for safety, luminaires with wireless controls allow for deep energy savings without compromising safety and security.

Aleo's offering allows you to achieve deep energy savings with luminaire-level occupancy sensors with daylight, luminaire-level nodes that can be grouped with sensors, and wireless dimmer switches. The system can be commissioned universally with a PC and iOS device.

Wireless Controls | Ecosystems

Wireless Occupancy Sensor
Model No: -OSDL/BT

- Wireless Commissioning
- Wireless Grouping and Zoning
- PIR Occupancy Sensing
- High / Low End Trim
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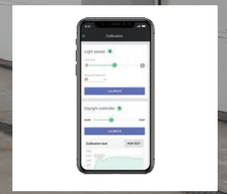

Commissioning App
Your iPhone or iPad

- Use iOS Smart Phone to Commission Devices
- No Dedicated Remote Needed
- Easy to Use Interface
- Fast Device Identification and Grouping

Sensor **Specifications**
Indoor Application

Benefits
- Cost-effective Solution for Energy Savings
- Energy Code Compliance
- Ideal for New Construction or Retrofit luminaires
- Robust Mesh Network
- Decentralized Control (no single point of failure)
- Gateway-less Configuration & operation

Applications
- Open Offices
- Individual Offices
- Conference Rooms
- Classrooms
- Retail Stores
- Hospitals

Integrates with

LT-CD | LTR | LLS

Wireless **Sensor**

Bluetooth PIR Occupancy | Daylight **Sensor**

Bluetooth Mesh
Self-healing, wireless Bluetooth network of devices. Over the air updates, inter-operable open standard.

Grouping and Zoning
Wirelessly group luminaires via sensor to act in sync with each other: On/Off, dim. Allows for more uniform control of smart lighting.

Fixture Integrated
Sensor is fixture-integrated, also known as luminaire level lighting control. Allows for easier and faster installation and implementation.

Ambient Daylight Sensor
Ambient Daylight sensor allows for greater energy savings and demand reduction by lowering light levels when natural daylight is present. Wireless calibration available.

PIR Occupancy Sensor
Design and build a smarter, more efficient lighting system with passive infrared occupancy sensing. Take energy savings to the next level by reducing demand when spaces are vacant.

Wireless Commissioning
Convenient commissioning and provisioning of sensors via universal iOS devices (iPhone or iPad). No dedicated remote needed. Utilizes your smart phone's Bluetooth technology.

Scene Control and Manual Control
Wirelessly control individual luminaires or groups of luminaires utilizing a wireless dimmer switch. Single Rocker or Double Rocker self-powered switches available. Set and program scenes.

Wireless Bluetooth Occupancy Sensor
Model No: - OSDL/BT

Integrates with
LTR | LT-CD | LLS

Wireless Controller **Node**

Bluetooth Control **Node**

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Continuous Dimming
0-10V dimming allows for manual dimming control via EnOcean dimmer switch and daylight harvesting that reduces light levels depending on ambient daylight.

Wireless Commissioning
Convenient commissioning and provisioning of sensors via universal iOS devices (iPhone or iPad). No dedicated remote needed. Utilizes your smart phone's Bluetooth technology.

Scene Control and Manual Control
Wirelessly control individual luminaires or groups of luminaires utilizing a wireless dimmer switch. Single Rocker or Double Rocker self-powered switches available. Set and program scenes.

Wireless Bluetooth Lighting Control Node
Model No: - WLC/BT

Integrates with
LTR | LT-CD | LLS

Sensor **Specifications**

Warehouse Application

Benefits

- Cost-effective Solution for Energy Savings
- Energy Code Compliance
- Fits into Existing and New-design Luminaires
- Robust Mesh Network
- Decentralized Control (no single point of failure)
- Gateway-less Configuration & Operation

Applications

- Warehouse
- Manufacturing
- Gymnasium
- Distribution Facilities
- E-Commerce
- Retail

Integrates with

SCB | SLB | XLB

Wireless PIR Occupancy **Sensor**

Bluetooth PIR Occupancy | Daylight **Sensor**

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PIR Occupancy Sensor

Model No.: -OSDL/BT

Integrates with

SCB | SLB | XLB

Dimmer Switch Specifications

EnOcean BLE | Universal Application

Features:

- Self-Powered
- Wireless Bluetooth Low Energy
- Dimming and On/Off
- Long and Short Press Options
- Wireless Dimming

Benefits:

- No Batteries needed
- Maintenance Free
- No Wiring needed
- Reduced Labor Cost
- Code Compliance

Dimmer **Switch**

Wireless Bluetooth **Dimmer Switch**

Self-Powered
Maintenance-free, self-powered Bluetooth Low Energy (BLE) switches. No batteries required. Powered by kinetic energy. Reduces maintenance and downtime.

Continuous Dimming
0-10V dimming allows for manual dimming control via EnOcean dimmer switch. Ideal for small offices, private offices, classrooms, and conference rooms.

Single or Double Rocker Available
Single Rocker for dimming and On/Off control. Double Rocker allows for programming scene control.

Wireless Dimmer Switch
On/Off and Dimming

Sold Separately
Double-Rocker or Single-Rocker

Smarter Lighting

Deep Energy Savings | Demand Reduction

Aleo Lighting's robust offering of LED luminaires and retrofit kits equipped with wireless controls enables spaces to achieve even greater energy savings and demand reduction and create more productive spaces. Turn-key lighting with wireless controls means easy installation and commissioning, faster projection completion, and vastly improved return on investment.

LED lighting and wireless controls make a perfect combination to drive down energy costs and deliver a myriad of additional benefits, including improved safety and security, enhanced occupant comfort and performance.

Wireless Controls | Bluetooth Luminaires

Indoor **Application**

Wireless Bluetooth Luminaires

LT-CD™ Series
Volumetric LED Troffer

2' x 2' - 25W
2' x 4' - 34W
DLC Premium

Model No.: **-OSDL/BT** - Wireless Bluetooth Occ. Sensor w/ Daylight

Model No. **-WLC/BT** - Wireless Bluetooth Controller Node

LTR™ Series
LED Troffer Retrofit Kit

2' x 2' - 25W
2' x 4' - 34W
DLC Premium

Model No. **-OSDL/BT** - Wireless Bluetooth Occ. Sensor w/ Daylight

Model No. **-WLC/BT** - Wireless Bluetooth Controller Node

LLS™ Series
LED Linear Strip Luminaire

4' - 25W, 40W
8' - 52W, 68W
DLC Premium

Model No. **-OSDL/BT** - Wireless Bluetooth Occ. Sensor w/ Daylight

Model No. **-WLC/BT** - Wireless Bluetooth Controller Node

Highbay **Application**

Wireless Bluetooth Luminaires

SCB™ Series
LED High Bay

100W, 150W,
200W, 240W
DLC Premium

Model No. **-OSDL/BT** - Wireless Bluetooth Occ. Sensor w/ Daylight

SLB™ Series
Slim Linear LED High Bay

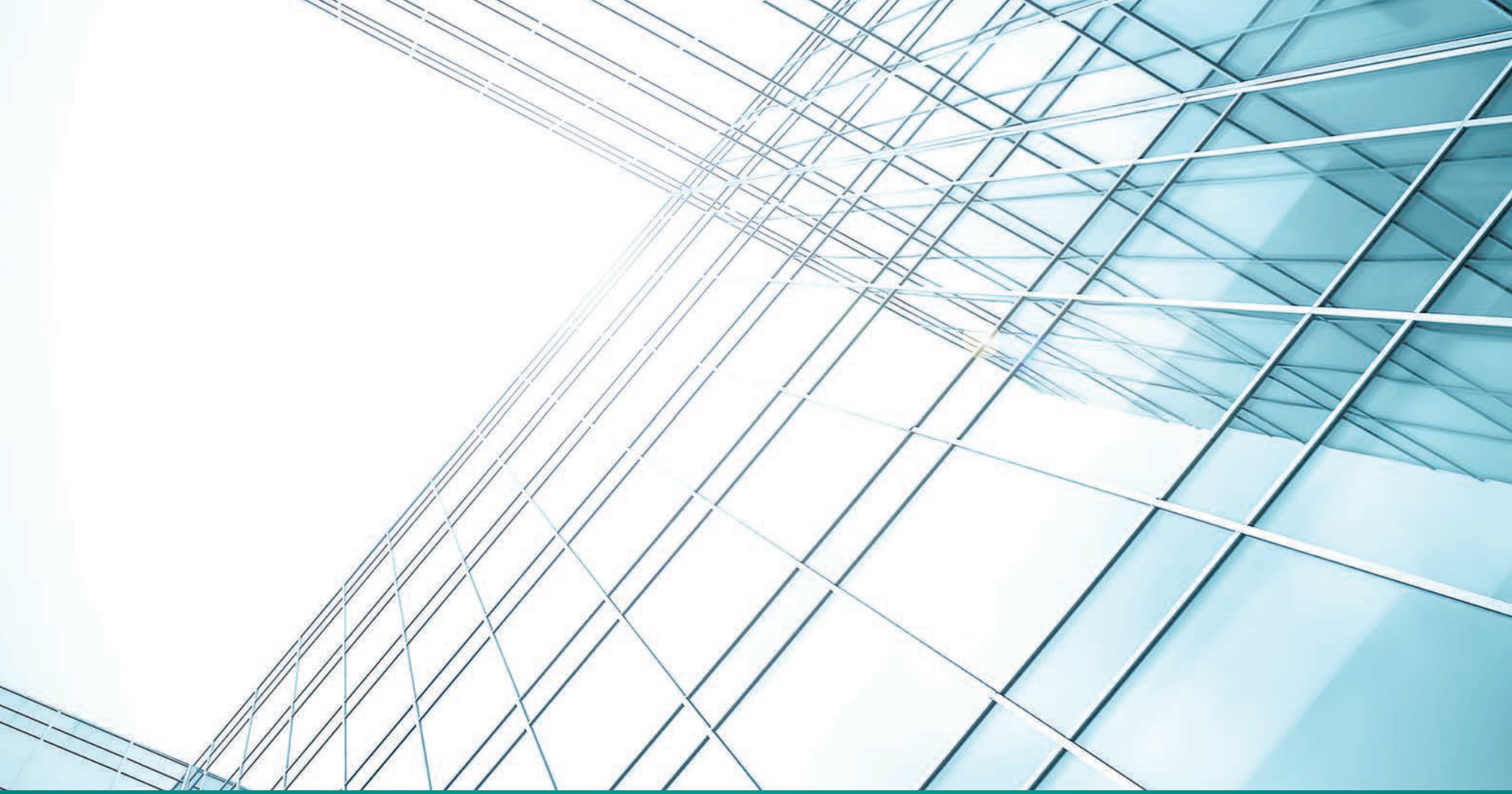
2' - 90W, 135W, 162W, 215W
4' - 225W, 275W, 320W
DLC Premium

Model No. **-OSDL/BT** - Wireless Bluetooth Occ. Sensor w/ Daylight

XLB™ Series
Ultra Efficient Linear LED High Bay

2' - 70W, 100W, 150W
DLC Premium

Model No. **-OSDL/BT** - Wireless Bluetooth Occ. Sensor w/ Daylight



Aleo Lighting, Inc.
www.aleolighting.com
13924 Bettencourt St.
Cerritos, CA 90703
Ph: 877-358-8825

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