Outdoor Controls Technical Guide

AcuityBrands.

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Acuity Brands is the North American market leader and one of the world's leading providers of lighting systems. With our comprehensive portfolio and in-depth knowledge of lighting, controls and daylighting, we provide integrated, intelligent solutions from one company. We offer expertise throughout the project lifecycle, while striving to make doing business with us valuable and easy.

AcuityBrands.

Why Controls?

In today's world, lighting designers, engineers and facility managers have to do more with less. Shrinking budgets, expanding energy regulations and increased consumer demand require an outdoor lighting system that is simultaneously cost effective and code compliant, yet delivers a safe and secure environment. A lighting strategy that incorporates more modern, efficient lighting with digital controls helps customers realize significant advantages over lighting-only options.

Reduction in Energy and Maintenance Costs

Applying lighting controls can save 25 to 45 percent of the lighting energy in many spaces. The right controls strategy can also have a positive impact on a project's return on investment by not only reducing energy consumption, but also lowering maintenance costs and extending the life of new and existing luminaires. Proper use of controls can even enhance retail commerce by providing reliably lit commercial areas.

Safety

Monitoring and diagnostics in outdoor lighting spaces enable quick response to lighting failures, virtually eliminating customer complaints, while helping to provide more rapid restoration of luminaire operation. Reliable, high-quality lighting systems improve visibility, which can help deter crime.

Site-Wide Control

Intelligent lighting controls simplify complex projects with graphical interface management of larger lighting systems. In many cases, the lighting control system can seamlessly connect to already-installed site automation systems. Proper use of these control systems can also provide simple steps to reduction of light trespass and pollution.

Controls Strategies That Work

Acuity Brands has a solution for any controls need, ranging from simple motion sensing to enterprise-wide scheduling and monitoring. The following guide will help you identify which controls solution you need for your application and give you an understanding of how it works.

Implementing multiple levels of control strategies with innovative and practical solutions from Acuity Brands saves time through automation and saves money by reducing energy consumption by as much as 45%. The following table explains these different control strategies and how they work to save energy.

Strategy	Description
Dusk-to-Dawn	Lights turn on or off based on ambient light conditions.
Part Night	Calculates on/off/dim times to reduce the light levels part-way through the night.
Bi-Level Dimming	Enables the luminaire to be controlled by a second switched circuit, allowing the light to be dimmed when needed.
Trimming	Remotely adjusts schedules for on/off/dim times based on offsets from official sunrise and sunset.
Monitoring & Diagnostics	Monitor lighting performance and optimize maintenance by reporting issues at the first sign of malfunction.
Field-Adjustable Output	Tune the lighting to the exact needs of a particular application through on-site controls.
Continuous Dimming	Varies the light output of the lighting system over a continuous range, from a full to a minimum light output, smoothly between steps.
Occupancy Sensing	Controls the operation of lighting by detecting the presence of people in an area.
Scheduling	Controls lighting based on the time of day or astronomical event.

Stand-Alone Controls

Simple

Dusk-to-Dawn Photocontrols

I need a controls solution that will turn my lights on at night and off during the day, based on daylight.

1. **Luminaire-Based Photocontrols**
2. **Branch-Circuit Photocontrols**

Panel-Based Relays

I need a controls solution that will turn my lights on at night and off during the day, based on a schedule.

Sophisticated

I need a controls solution that will turn my lights on at night and off during the day, based on daylight.

Our Solution:

Dusk-to-Dawn Photocontrols

A dusk-to-dawn photocontrol allows lights to turn on or off based on ambient light conditions. Simply put, they turn light on at night and off during the day, making this solution ideal for anyone looking to save energy and reduce maintenance costs.

There are two photocontrol options that can meet this basic controls need: luminaire-based photocontrols and branch-circuit photocontrols.

Luminaire-Based Photocontrols

With luminaire-based photocontrols, a photocontrol is located on each luminaire. An important aspect to consider when selecting photocontrols is expected life. The long life of photocontrols is important—customers purchase LED products, in part, to reduce maintenance costs. If they're having to maintain a photocontrol on each luminaire, it is an inconvenience and waste of money.

With this solution, luminaires located in shaded areas turn on earlier than other luminaires on the circuit, providing well-lit areas even during early evening hours.

Branch-Circuit Photocontrols

With branch-circuit photocontrols, a single photocontrol is located near a contactor or breaker panel that controls an entire branch circuit of outdoor luminaires. At dusk, the photocontrol allows all of the luminaires on that circuit to turn on at full brightness. At dawn, once the sun rises, lights will turn off automatically together. This option is frequently used with contactors in lieu of a time clock.

A key benefit to this approach is that there aren't any required options on the luminaire when ordering, which means that this can be added to existing systems without difficulty.

Did You Know?

Our recommended setting for photcontrols is 1.5 fc (ANSI standard) in a fail-off setting so that if the photocontrol fails, the lights do not become dayburners and shorten the life of the luminaire. Additionally, when using luminaire-based photocontrols, each luminaire has to be ordered with a NEMA twist-lock receptacle to operate correctly.

How It Works

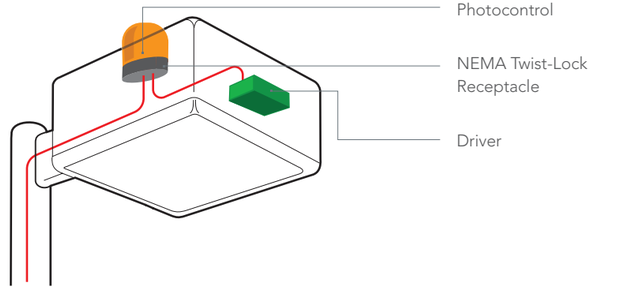
Photocontrols turn luminaires on at dusk and off at dawn.

Recommended Product

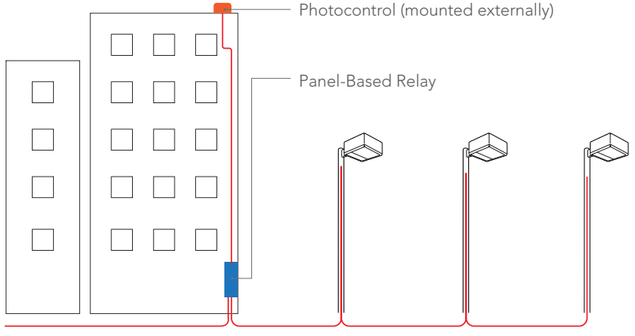
Acuity Controls DLL Elite
With superior LED inrush current protection and TRIAC-assisted relay, the DLL Elite LED photocontrol is designed to last as long as the LED lighting system itself – 20 years or longer.

Technical Details

Luminaire-Based Photocontrols
Power comes into the luminaire and connects into the NEMA twist-lock receptacle. The NEMA receptacle connects out to the driver. The photocontrol locks into the NEMA receptacle.



Branch-Circuit Photocontrols
Power comes into the panel-based relay and connects to a photocontrol, mounted remotely. Power goes from the panel and connects out to each luminaire.



I need a controls solution that will turn my lights on at night and off during the day, based on a schedule.

Part Night

Bi-Level Dimming

Continuous Dimming

Scheduling

Our Solution:

Panel-Based Relays

Panel-based relays provide a solution to basic controls needs. An advantage of panel-based relays is that they are centrally controlled…if you need to change the schedule for your luminaires, you can do so at one panel to impact them all, and subsequent changes can be done at any time. Acuity Controls Blue Box™ can support up to 16 zones per relay panel, but you do have the ability to link multiple panels if additional control circuits are needed.

This controls capability is ideal for locations that have consistent hours of operation and do not require luminaire-by-luminaire control and diagnostics.

Did You Know?

If you are using multiple zones, this solution is better suited for new construction applications. Once zones are set after initial install, it is difficult to change them. However, the schedule for the zones can be amended at any time.

How It Works

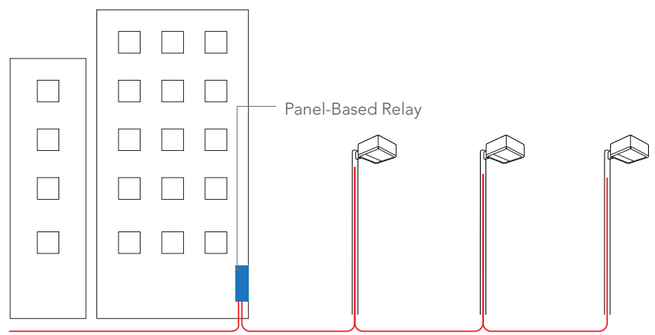
Panel-based relays turn luminaires on and off based on a schedule. The schedule can be controlled by a scheduling device or a wall switch.

Recommended Product

Acuity Controls Blue Box™
Program outdoor luminaires to slowly dim up or down in relation to available daylight, and schedule automatic on/off based on time of day.

Technical Details

Power comes into the panel-based relay and connects out to each luminaire.



Integrated Controls

Simple

Field-Adjustable Output

I need a controls solution that will allow me to adjust the brightness of my luminaires. If the solution I selected is too bright, I can turn the light levels down, on a luminaire-by-luminaire basis.

Motion Sensors

I need a controls solution that will turn my lights to full brightness when occupants enter the area, but dim when no one is around.

Bi-Level Dimming Control

I need a controls solution for my new construction application that allows me to have periods of high or low light output, depending on my nightly schedule.

Bi-Level Dimming Control with Motion Sensors

I need a controls solution for my new construction application that allows me to have periods of high or low light output, depending on my nightly schedule, but gives me full light output when occupants enter the area.

Part-Night Automatic Scheduled Dimming

I need a controls solution for my retrofit application that has set periods of high or low light output throughout the night.

Part-Night Automatic Scheduled Dimming with Motion Sensors

I need a controls solution for my retrofit application that has set periods of high or low light output throughout the night, but gives me full light output when occupants enter the area.

Sophisticated

I need a controls solution that will allow me to adjust the brightness of my luminaires. If the solution I selected is too bright, I can turn the light levels down, on a luminaire-by-luminaire basis.

Our Solution:

Field-Adjustable Output

Field-adjustable output (FAO) is an on-board device that adjusts the light output and input wattage to meet site-specific requirements, allowing a single luminaire configuration to be individually dimmed to the needs of that location.

The FAO module is designed to dim an LED luminaire to a specific output that can be selected in the factory or in the field during installation or maintenance.

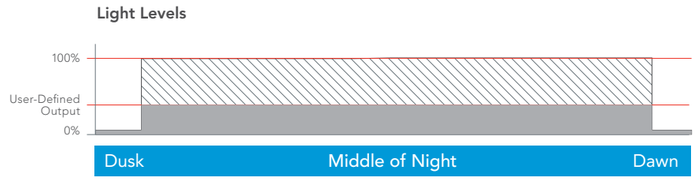
Did You Know?

Adding this option to luminaires is beneficial for many reasons. First, the luminaire you ordered may appear much brighter than you initially intended. Another scenario may be that you have certain areas of the application where light levels are a concern. In either case, with field-adjustable output, you can lower the light levels of particular luminaires to suit your applications' needs.

Field-Adjustable Output

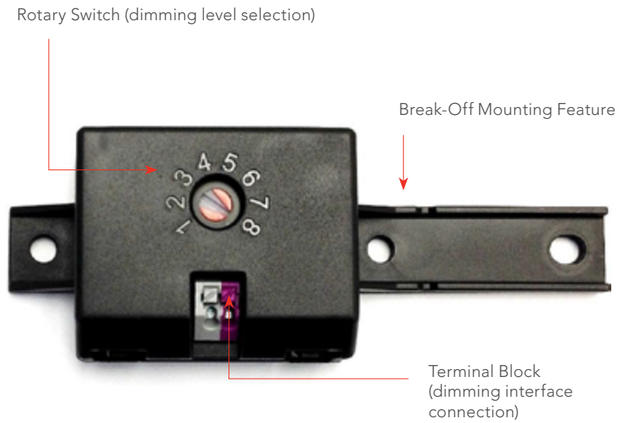
How It Works

The FAO device adjusts the light output and input wattage to meet site-specific requirements, allowing the user to define specific luminaire-by-luminaire settings.



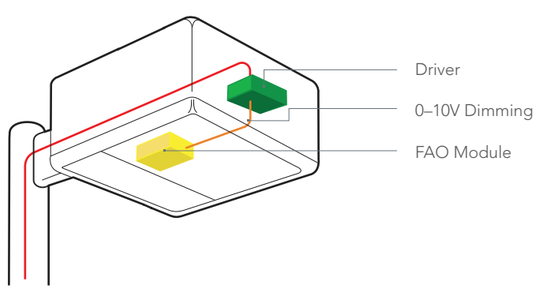
Product Details

A dimming level set is adjusted through a rotary switch located on the front of the module. The rotary switch has a screwdriver slot for a dimming level selection, and a detent feature for each set level (1 to 8).



Technical Details

Power comes into the luminaire and connects into the driver. The FAO module is connected to the driver via 0-10V dimming.



I need a controls solution that will turn my lights to a high setting when occupants enter the area, but dim when no one is around.

Dusk-to-Dawn (configuration specific)

Field-Adjustable Output

Occupancy Sensing

Our Solution:

Motion Sensors

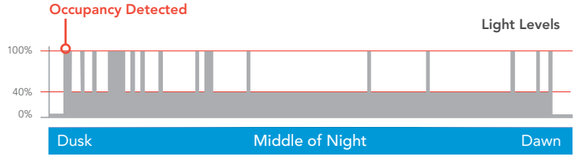
Motion sensors allow luminaires to remain in a dimmed state until motion is detected. When triggered, motion sensors increase the light level to a high setting, which can enhance the feeling of safety and security. This solution is particularly effective in spaces that have significant periods without activity. Additionally, motion sensors are often used in conjunction with other controls capabilities to enhance energy savings and the life of the luminaire.

Outdoor motion sensors use passive infrared (PIR) technology to detect large motion in outdoor spaces. Selection of the right sensor and lens combination is critical to an effective installation.

Mounting heights between 8' and 15' above grade would use the PIR option, while the PIRH option provides occupancy sensing at mounting heights between 15' and 30' above grade. For luminaire mounting heights over 30', we recommend a pole-mounted motion sensor, such as the SBOR.

How It Works

Motion sensors enable luminaires to respond to occupancy.



Did You Know?

Some of our integral motion sensors have built-in photocontrols that can be used for dusk-to-dawn control. Contact Acuity Controls at 800-535-2465 for details on which configurations have this feature. This information is also available on our spec sheets.

Product Details

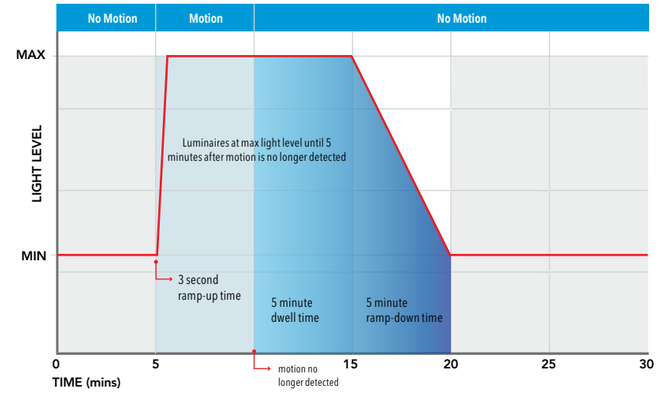
This chart helps you determine the correct motion sensor to use for your application.

If you need customization, you can accomplish this through push-button sequencing or custom ordering. For small jobs, it is easy to adjust the settings through push-button sequencing, but for larger jobs, we would recommend placing a custom order for your necessary controls settings. Consult our spec sheets for the most up-to-date information.

Application-Specific Criteria			Motion Sensor Recommendation
Primary Application	Sensor Mounting Height	Photocontrol Threshold	Catalog Number
Surface Lots	8' - 15'	5 fc	PIR
Surface Lots	15' - 30'	5 fc	PIRH
Surface Lots	8' - 15'	1 fc	PIR1FC3V
Surface Lots	15' - 30'	1 fc	PIRH1FC3V
Parking Garages	8' - 15'	3 fc	PIR3FC3V
Parking Garages	15' - 30'	3 fc	PIRH3FC3V
Luminaires Mounted Over 30'	30'	5 fc	PIRH (pole-mounted)

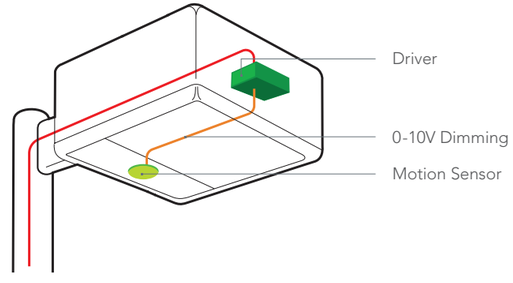
Motion Sensor Default Settings					
Dimmed State	High Level (when triggered)	Operation	Dwell Time	Ramp-Up Time	Ramp-Down Time
3V (approx. 37% light output)	10V (100% light output)	Enabled	5 min	3 sec	5 min

This image demonstrates our motion sensor's performance when set to the default settings. There is a three-second ramp up (quick response without a visible flash) when motion is sensed. After motion is no longer detected, there is a five-minute time delay and five-minute ramp down (to make it imperceptible).



Technical Details

Power comes into the luminaire and connects into the driver. The motion sensor is connected to the driver via 0-10V dimming.



I need a controls solution for my new construction application that allows me to have periods of high or low light output, depending on my nightly schedule.

Our Solution:

Bi-Level Dimming Control

Bi-level dimming allows users to have periods of high or low light output during nighttime hours, depending on expected occupancy in the space.

This capability is dependent on a second line voltage control circuit to the luminaire, which puts it in a state of high or low light output based on an external control. This external control may be an additional wall switch or an astronomical timeclock.

This controls solution is ideal for applications with fixed hours of operation where high levels of light are needed for a portion of the night, and low levels of light can be used during other periods.

Did You Know?

Because bi-level dimming requires a second line voltage control circuit, it is most applicable for new construction applications. A benefit to this solution is that illumination levels can be changed via the controls system at any time.

Bi-Level Dimming

How It Works

Bi-level dimming controls turn luminaires to full or dimmed light output, based on a schedule. The schedule can be controlled by a scheduling device or a wall switch.

Product Details

Bi-level dimming requires two switched circuits: the power circuit and control circuit. This chart explains overall luminaire output based on which circuits are switched on and which are switched off.

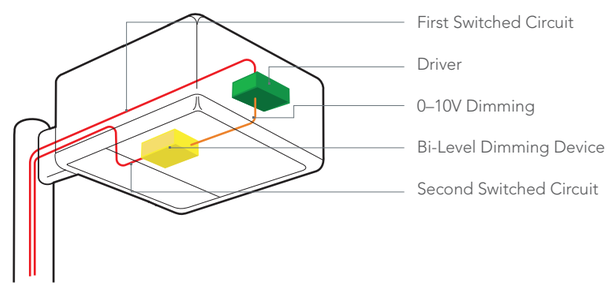
Line 1 (Power)	Line 2 (Controls)	Results
Power ON	Power ON	FULL
Power ON	Power OFF	DIM
Power OFF	N/A	OFF

Within bi-level dimming, there are two output options: BL30 and BL50. This chart explains input watts and lumen output for each of those options.

Dimming Control	Luminaire % of Input Watts (Approximate)	Luminaire % Lumen Output (Approximate)
BL30	34%	37%
BL50	46%	50%

Technical Details

Two switched circuits come into the luminaire. One connects to the driver and the other connects to the bi-level device. The bi-level device is connected to the driver via 0-10V dimming.



I need a controls solution for my new construction application that allows me to have periods of high or low light output, depending on my nightly schedule, but gives me full light output when occupants enter the area.

Our Solution:

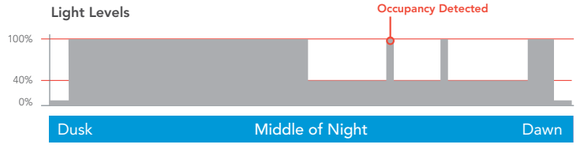
Bi-Level Dimming Control with Motion Sensors

By combining a bi-level dimming device with a motion sensor, the luminaire can be set at high or low light output, but always go to full brightness when someone enters the area. This is a powerful combination, as many customers want their lights to stay at full brightness early in the evening, but want the energy savings motion sensors provide during periods of low occupancy later in the night.

Here's another way to think about this functionality: you have a motion sensing luminaire with the ability to schedule certain periods of full light output throughout the night.

How It Works

Bi-level dimming controls turn luminaires to full or dimmed light output, based on a schedule. The schedule can be controlled by a scheduling device or a wall switch, and also responds to occupants.



Bi-Level Dimming

Occupancy Sensing

Did You Know?

The motion sensor used with the bi-level dimming device does not have a photosensor. An additional dusk-to-dawn photocontrol is required to prevent dayburners.

Product Details

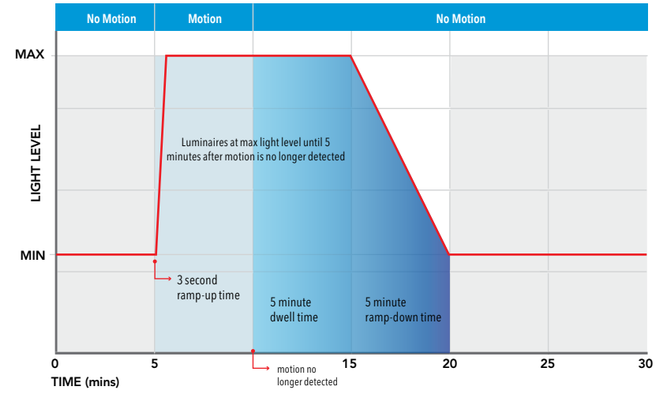
Bi-level dimming requires two switched circuits: the power circuit and control circuit. This chart explains overall luminaire output based on which circuits are switched on and which are switched off. Anytime the power circuit is on, occupancy will always trigger the luminaire to full brightness.

Line 1 (Power)	Line 2 (Controls)	Motion Sensors	Results
Power ON	Power ON	N/A	FULL
Power ON	Power OFF	No Occupancy	DIM
Power ON	N/A	Occupancy Detected	FULL
Power OFF	N/A	N/A	OFF

Within bi-level dimming, there are two output options: BL30 and BL50. This chart explains input watts and lumen output for each of those options.

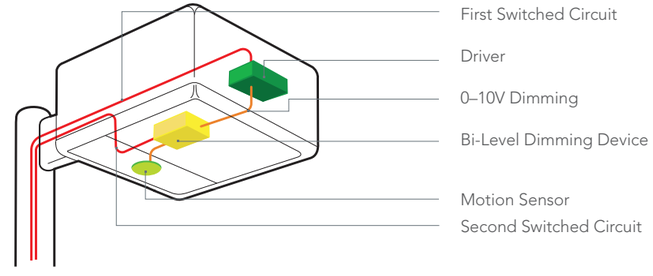
Dimming Control	Luminaire % of Input Watts (Approximate)	Luminaire % Lumen Output (Approximate)
BL30	34%	37%
BL50	46%	50%

This image demonstrates our motion sensor's performance when set to the default settings. There is a three-second ramp up (quick response without a visible flash) when motion is sensed. After motion is no longer detected, there is a five-minute time delay and five-minute ramp down (to make it imperceptible).



Technical Details

Two switched circuits come into the luminaire. One connects to the driver and the other connects to the bi-level device. The bi-level device is connected to the driver via 0-10V dimming, as well as to the motion sensor.



I need a controls solution for my retrofit application that has set periods of high or low light output throughout the night.

Part Night

Dusk-to-Dawn (required)

Our Solution:

Part-Night Scheduled Dimming

Part-night scheduled dimming provides significant energy savings by automatically dimming the luminaire during early morning hours when infrequent use is expected. This integrated option does not require additional wiring or circuitry, which makes it ideal for retrofit applications. The automatic scheduled dimming device "learns" the on-cycle of the luminaire, which is based off a midpoint, and adjusts for seasonality, resulting in longer on-periods in the winter and shorter on-periods in the summer.

During the first three nights of use, the part-night device calculates the average length of the night. The middle of the night, based on this calculation, is called the midpoint. Based on the dimming profile you select, the luminaires will dim at midpoint, or at a predetermined time before or after the midpoint (see the second column in the chart on the right). Your next selection is the duration of dimming after the midpoint. You can choose for the luminaire to stay dimmed until dawn, or for a predetermined time from the midpoint (see the third column). Your final selection is the dim setting, which lets you select the percentage of light output you want while your luminaire is in a dimmed state (see the fourth column).

Did You Know?

For this capability to work, you must also have some type of external dusk-to-dawn photocontrol to control the on-cycle. It can be controlled by a photosensor or a panel-based relay, such as the Acuity Controls Blue Box™.

How It Works

Part-night turns luminaires to full or dimmed light output, based on a midpoint. In order for part-night to function correctly, some type of dusk-to-dawn control is required.

Product Details

Each part-night device is programmed once at the factory, which eliminates field commissioning and adjustments. This makes it very important to select the correct dimming profile prior to ordering.

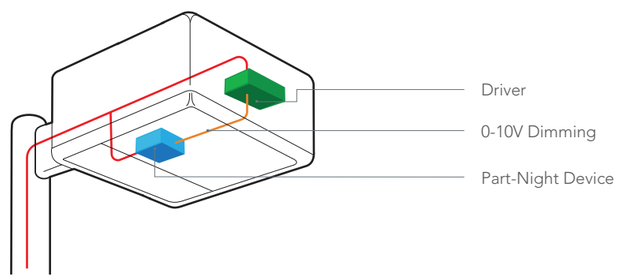
Items in gray have standard lead times. Longer lead times apply to custom options.

Option Part Number Prefix	Dim Start (relative to midpoint)	Duration of Dimming (after midpoint)	Dim Setting (approximate)
PN	3B 3 hours before midpoint	TD Until dawn	D0 0V (off)
	2B 2 hours before midpoint	T4 4 hours past midpoint	D2 2V
	1B 1 hour before midpoint	T5 5 hours past midpoint	D3 3V
	M At midpoint	T6 6 hours past midpoint	D4 4V
	1A 1 hour after midpoint	T7 7 hours past midpoint	D5 5V
	2A 2 hours after midpoint	T8 8 hours past midpoint	D6 6V
	3A 3 hours after midpoint		

Dim Setting	0-10V Signal (to dimming driver)	Luminaire % of Input Watts (approximate)	Luminaire % Lumen Output (approximate)
D0	0V (off)	0%	0%
D2	2V	23%	23%
D3	3V	34%	37%
D4	4V	46%	50%
D5	5V	58%	63%
D6	6V	71%	75%

Technical Details

Power comes into the luminaire and splits into two lines. The first part of the line is connected to the driver and the other is connected to the part-night device. The part-night device is connected to the driver via 0-10V dimming.



I need a controls solution for my retrofit application that has set periods of high or low light output throughout the night, but gives me full light output when occupants enter the area.

Our Solution:

Part-Night Scheduled Dimming with Motion Sensors

The part-night scheduled dimming device has a motion sensor override option which allows the luminaire to have scheduled periods of high or low light output, just like our standard part-night option, but also go to full brightness when someone enters the area.

Once in dim mode, the part-night automatic scheduled dimming can be overridden by a motion sensor. When triggered, the sensor will bring the luminaire to full light output as long as occupancy is detected.

Part Night

Occupancy Sensing

Dusk-to-Dawn (required)

Did You Know?

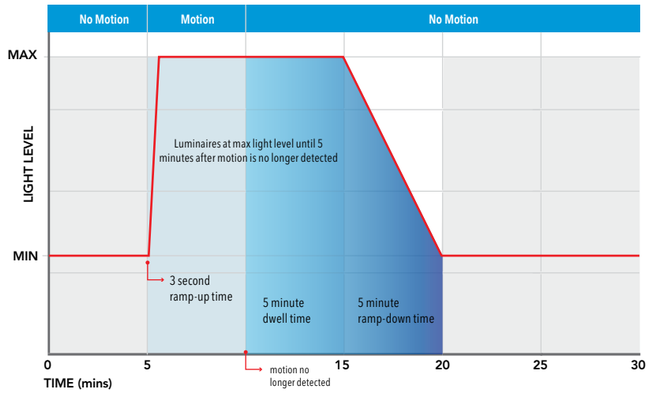
For this capability to work, you must also have some type of external dusk-to-dawn device to control the on-cycle. It can be controlled by a photosensor or a panel-based relay, such as the Acuity Controls Blue Box™.

How It Works

Part-night turns luminaires to full or dimmed light output, based on a midpoint and also responds to occupants. In order for part-night to function correctly, some type of dusk-to-dawn control is required.

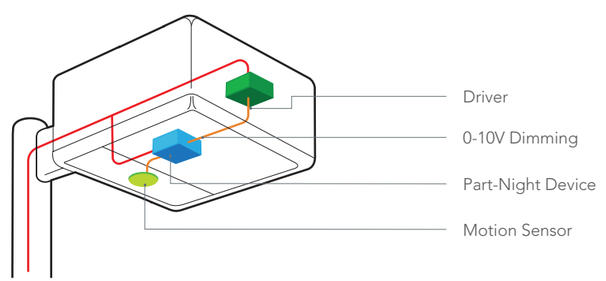
Product Details

This image demonstrates our motion sensor's performance when set to the default settings. There is a three-second ramp up (quick response without a visible flash) when motion is sensed. After motion is no longer detected, there is a five-minute time delay and five-minute ramp down (to make it imperceptible).



Technical Details

Power comes into the luminaire and splits into two lines. The first part of the line is connected to the driver and the other is connected to the part-night device. The part-night device is connected to the driver via 0-10V dimming, as well as to the motion sensor.



Networked Controls

Simple

Sophisticated

Wireless Mesh Networks

I need a controls solution that allows me to wirelessly set up zones and schedule periods of high or low light output. I also need the flexibility to change the schedule at any time, as well as the ability to monitor my luminaires' performance.

Acuity Controls ROAM®

Acuity Controls XPoint™ Wireless

Sensity

I need a controls solution that allows me to wirelessly set up zones and schedule periods of high or low light output. I also need the flexibility to change the schedule at any time, as well as the ability to monitor my luminaires' performance.

- Trimming
- Bi-Level Dimming
- Part Night
- Dusk-to-Dawn
- Monitoring & Diagnostics
- Field-Adjustable Output
- Continuous Dimming
- Occupancy Sensing
- Scheduling

Our Solution:

Wireless Mesh Network

A wireless mesh network consists of intelligent nodes used to control luminaires. Nodes monitor performance and operating conditions, and execute commands based on inputs such as schedules and daylight levels. Information collected about the luminaires' performance is wirelessly transmitted to a gateway and passed on to a server, where it is graphically displayed at a customer workstation.

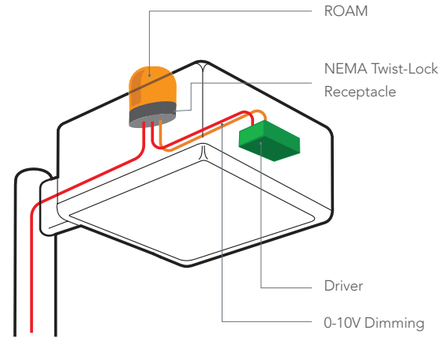
Did You Know?

Mesh networks must have other external equipment, such as gateways and access points. Contact Acuity Controls at 800-535-2465 for more information.

Ideal solution for area lighting:

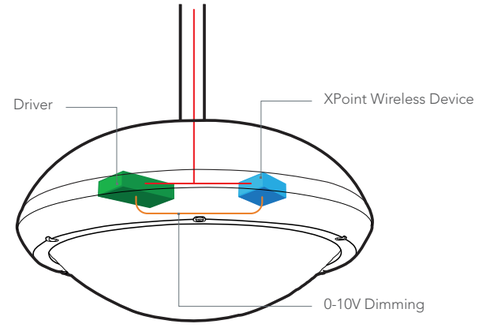
Acuity Controls ROAM® is a wireless outdoor lighting management system that is ideal for either new construction or retrofit applications. Through ROAM, you can schedule zones for different settings within a single application. For example, if you have an auto dealership and you want the lights in the front row of the parking lot to stay at 50 percent all night, but you want the area behind the building to dim to 30 percent, you can customize zones to meet your specifications, and change them at any time.

Luminaires must have a NEMA twist-lock receptacle in order to use ROAM. Typically a 5-wire receptacle is used, but in some cases other configurations are needed. Contact Acuity Controls for more information.



Ideal solution for parking garage lighting:

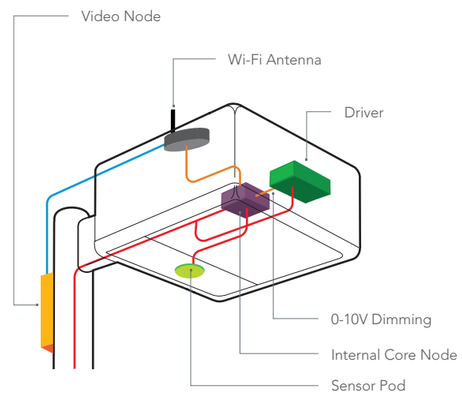
Acuity Controls XPoint™ Wireless, through an advanced self-healing wireless mesh network, delivers reliable and secure communication between luminaires, so they can intelligently anticipate and brighten a driver's or pedestrian's path. This approach eliminates single-luminaire responses and provides patrons with an enhanced visual experience and improved field of view throughout the environment.



Ideal solution for video monitoring and smart cities:

Acuity Brands has joined forces with Sensity to further expand our industry-leading smart outdoor lighting solutions capabilities. With Sensity, we have added the ability to capture and transmit data in near real-time, providing actionable insight and transforming energy-efficient LED lighting into a smart, connected platform for the Internet of Things (IoT).

Ideally suited for large sites and areas that pose security risks due to high traffic and visitor volumes, the smart outdoor network solution can help enhance sustainability efforts, maximize budgets and manage resources more efficiently.



Quick-Reference Chart

The quick-reference chart that follows provides a summary of the technical details and capabilities of our controls solutions.

This chart serves as a handy reference for controls capabilities available with our outdoor luminaires. Please consult our spec sheets for the most up-to-date product information.

Controls	Capability						Technical Details						
	Dayburner Prevention	Occupancy Detection	Switched Hi-Low	Programmed Hi-Low	Top End Trim	Wireless Network	Receptacle Used	PER Connected To	Recommended Photocontrol	DCM Used	Requires Second Switched Leg	Requires Secondary Dusk-to-Dawn Switching	Photocontrol Available In Motion Sensor
Photocontrol (Luminaire-Based)	Y						PER	Incoming Power	DLL Elite				
Photocontrol (Branch-Circuit)	Y						Remote	Branch Circuit					
Panel-Based Relay	Y		Y	Y	Y		Remote	Incoming Power					
Field-Adjustable Output					Y								
Motion Sensor		Hi-Low			Y								Y
Motion Sensor + Photocontrol	Y	Hi-Low					PER	Incoming Power	DLL Elite				Y
Bi-Level Dimming (BL30 or BL50)			Y								Y		
Bi-Level Dimming + Photocontrol	Y		Y				PER	Incoming Power	DLL Elite		Y		
Bi-Level Dimming + Motion		Hi-Low	Y		Y						Y		N
Bi-Level Dimming + Motion Sensor + Photocontrol	Y	Hi-Low	Y				PER	Incoming Power	DLL Elite		Y		N
Part-Night Scheduled Dimming (all programs)	*			Y								External	
Part-Night Scheduled Dimming + Photocontrol	Y			Y			PER	Incoming Power	DLL Elite			DLL Elite	
Part-Night Scheduled Dimming + Motion Sensor	*	Hi-Low		Y								External	N
Part-Night Scheduled Dimming + Motion Sensor + Photocontrol	Y	Hi-Low		Y			PER	Incoming Power	DLL Elite			DLL Elite	N
Standard ROAM®	Y				Y	Y	PER	Incoming Power					
Dimming ROAM	Y				Y	Y	PER5	Dimming Driver					
Standard ROAM with Motion	Y	Hi-Low		Y	Y	Y	PER	Incoming Power		Y			N
XPoint™ Wireless				Y	Y	Y							
Sensity	Y	Configurable		Y	Y	Y	Custom	Internal Core Node					

*Please note that a dusk-to-dawn control is required for proper operation.

Design with Confidence

A+ Certified solutions from Acuity Brands help you quickly and confidently select and implement lighting systems, for indoor or outdoor applications, that are both compatible and consistent.

For lighting applications, A+ means verified consistent performance, visual appearance and system interoperability of all luminaires and controls within the certified solution.

For lighting professionals, it means confidence that all parts of the lighting system will work together and meet common Acuity Brands specifications.

Go to **www.acuitybrands.com/aplus** or contact your local Acuity Brands representative for more information.

For more information about our products, please visit www.acuitybrands.com.

AcuityControls

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