

LUMEWAVE

By  **ECHELON**®



PARKING LOT AND PATHWAY LIGHTING BEST PRACTICE SOLUTION

The Lumewave TOP900 by Echelon Series of wireless controls brings many benefits to exterior lighting:

- Energy savings
- Reduced light pollution
- Convenience to users
- Dynamic response
- Enhanced public safety
- Reduced maintenance costs

Application Overview

Parking lot, area, and pathway lighting that burns all night represents a significant source of energy waste and contributes to needless sky glow and light pollution.

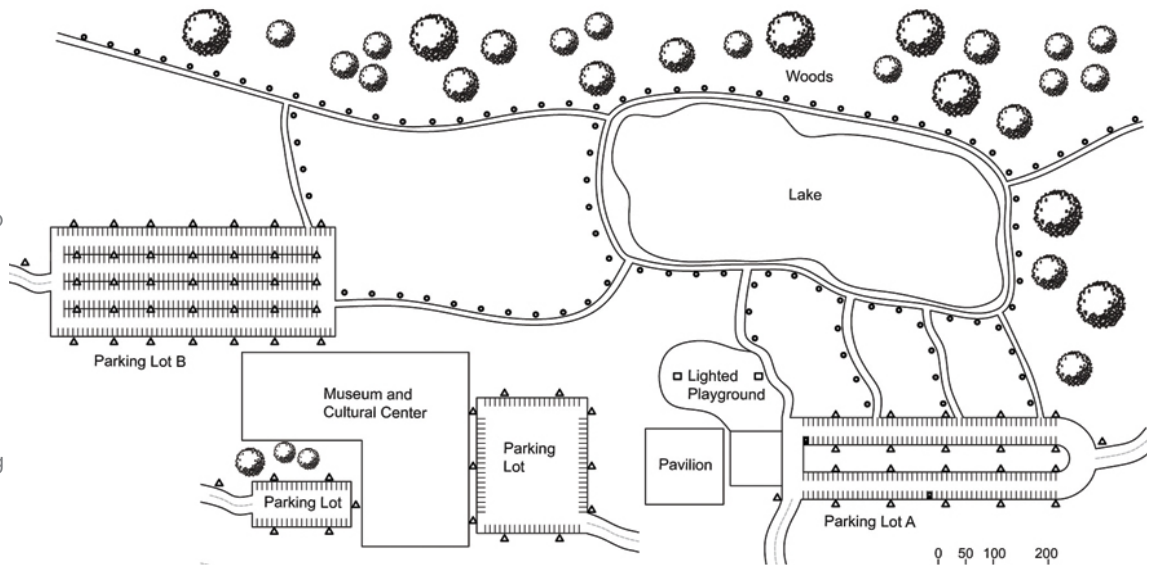
Design Solution

The Lumewave TOP900 module is mounted to each lighting fixture, minimizing energy usage by dimming lights down or turning lights off automatically. Fixtures are addressed and grouped for on/off, stepped dimming or 0-10V linear dimming.

Incorporating motion based control adds convenience, enhances public safety and provides additional energy savings. Lumewave's peer-to-peer communication eliminates issues with sensor coverage and pole spacing. Lighting can be progressively brought up ahead of pedestrians or bicyclists, safely illuminating the pathway.

In a parking lot, as motion detectors sense movement, this feature can communicate with the nearest devices surrounding that pole, bringing up group lighting to illuminate a bubble of light around an individual passing through the area.

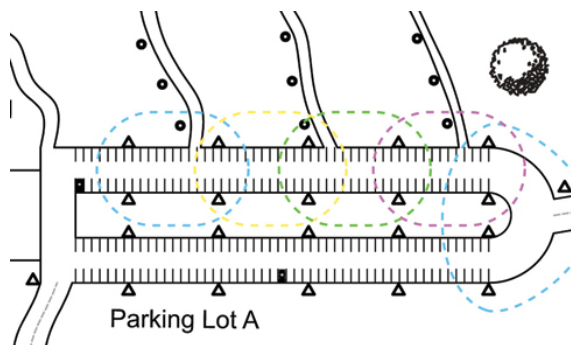
User-friendly software, accessible anywhere, features simple set up and scheduling and provides demand response overrides for special events or emergencies. Revenue grade metering of energy usage and fixture health is reported on a time frame chosen by the user. Work orders for malfunctioning lights are generated automatically. Maintenance costs are reduced because users no longer need to send crews out looking for night time outages or day burners. Performance history can be used for predictive maintenance programs further reducing costs.



Group 1

City Parking Lot A

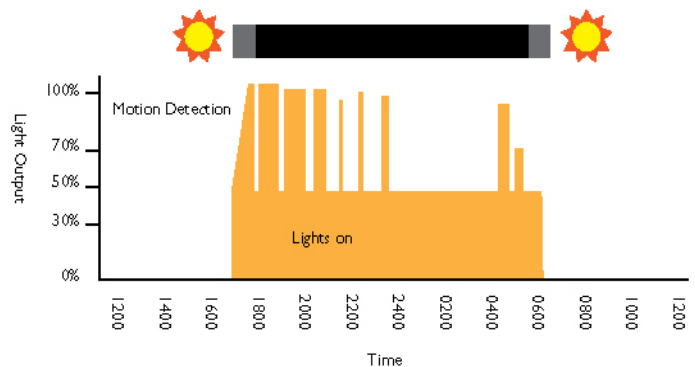
City parking lot A is near the lake, pathways, playground and pavilion. Parking lot A has two vehicle entries and three pedestrian pathways.



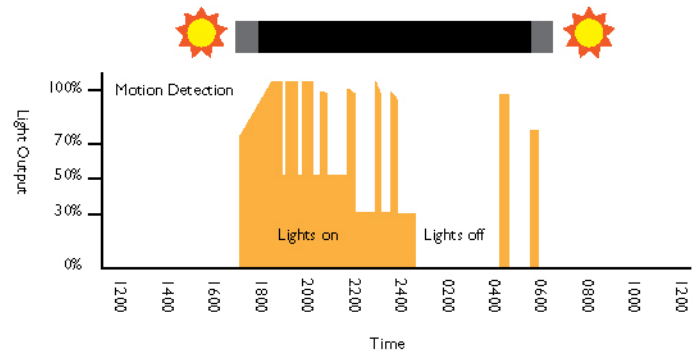
Lighting

- 80 watt dimming LED shoe box fixtures mounted on 20 foot poles spaced 100 feet apart
- Nighttime operation is high/low and on/off

TYPICAL PATHWAY OPERATION



TYPICAL PARKING LOT OPERATION



Control Solution

Lumewave 900 series modules mounted to each fixture automatically turn lighting on and off based on photocell settings:

- ON to 70% thirty minutes after sunset.
- Increases to 100% at dark. Motion detectors provide high/low operation of 100% to 50% based on the presence of people.
- At 2200 hours, high/low operation drops to 100% and 30%.
- OFF at midnight. Any motion detection brings up all lighting in that group. Lights go off after time delay.
- ON to 70% one hour before sunrise.
- Switches completely off when the photocell thresholds have been reached.

Motion detectors on each pole input the TOP900s.

Peer-to-peer communication allows for proximity grouping and Direction of Travel features to bring up lighting progressively as one moves through the parking lot.

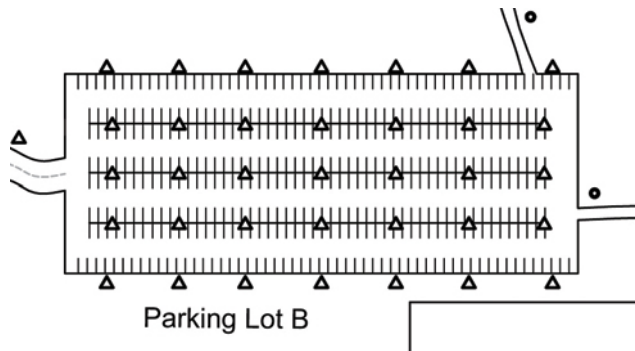
- For example, when a vehicle enters the parking lot at the entrance on the right, the last fixture from the street entrance and the two fixtures at each parking entrance come up to high. (Poles outlined in blue).
- If the vehicle enters the right hand parking section, when either of the motion detectors on the first two fixtures circled in pink detect movement, lighting on all poles in that group come up to high.
- If the vehicle proceeds into the detection zone of the first two fixtures circled in green, all lighting in that zone will come up to high. This continues throughout the lot on either side of the parking sections. Pedestrian traffic coming from the pathways or walking through the parking lot will activate the appropriate zoned lighting as well.

For nighttime special events, LumeStar software allows city officials to easily amend the lighting schedules to meet those needs.

Group 2

City Parking Lot B

City parking lot B feeds into the lake and pathways as well as the museum. Parking lot B has one vehicle entries and two pedestrian pathways.



Lighting

- 75 watt bi-level induction or LED shoebox fixtures mounted on 20 foot poles spaced 100 feet apart
- Nighttime operation is high/low and on/off

Control Solution

Lumewave 900 series modules mounted to each fixture automatically turn lighting on and off based on photocell settings:

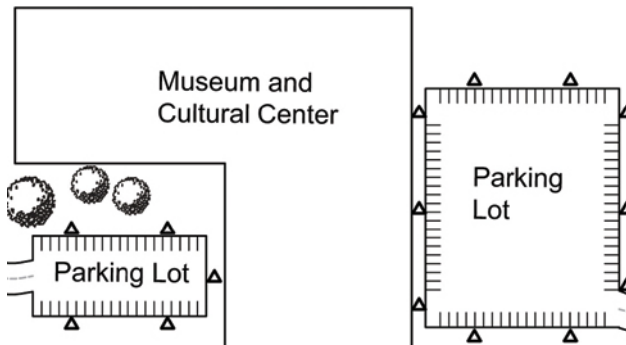
- ON to 70% thirty minutes after sunset.
- Increases to 100% at dark. Motion detectors provide high/low operation of 100% to 50% based on the presence of people.
- At 2200 hours, high/low operation drops to 100% and 30%.
- OFF at midnight. Any motion detection brings up all lighting in that group. Lights go off after time delay.
- ON to 70% one hour before sunrise.
- Switches completely off when the photocell thresholds have been reached.

Motion detectors mounted on each pole will input the TOP900s. Peer-to-peer communication allows for Geo-Proximity grouping and Direction of Travel features to bring up lighting progressively, surrounding the traveler in a sphere of light as one moves through the parking lot.

Group 3

Museum Parking Lots

Lighting for the museum parking lots are controlled to match the museum's hours of operation.



Lighting

- 75 watt bi-level induction or LED shoebox fixtures mounted on 20 foot poles spaced 100 feet apart
- Nighttime operation is high/low and on/off

Control Solution

Lumewave 900 series modules mounted to each fixture automatically turn lighting on and off based on photocell settings:

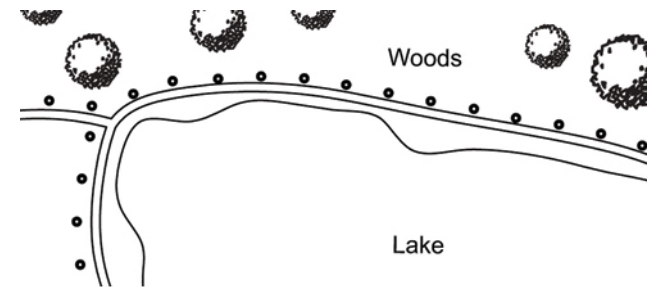
- ON to 70% thirty minutes after sunset.
- Increases to 100% at dark. Motion detectors provide high/low operation of 100% to 50% based on the presence of people.
- At 2200 hours, high/low operation drops to 100% and 30%.
- OFF at midnight. Any motion detection brings up all lighting in that group. Lights go off after time delay.
- ON to 70% one hour before sunrise.
- Switches completely off when the photocell thresholds have been reached.

Motion detectors mounted on each pole will input the TOP900s. Fixtures are grouped so detection by any sensor brings up all lighting in the parking lot. When the museum has special nighttime events, officials can use LumeStar software to amend the lighting schedule so lights are at suitable levels until the event ends.

Group 4

Pathways, Woods, Lake

Pathways lead from all the parking lots throughout the park and around the lake. The pavilion and nearby grass areas are utilized by the public and by the city for special events.



Lighting

- 40 watt induction type, bi-level Acorn fixtures mounted on 10 foot poles, spaced 50 feet apart
- Nighttime operation is high/low and on/off

Control Solution

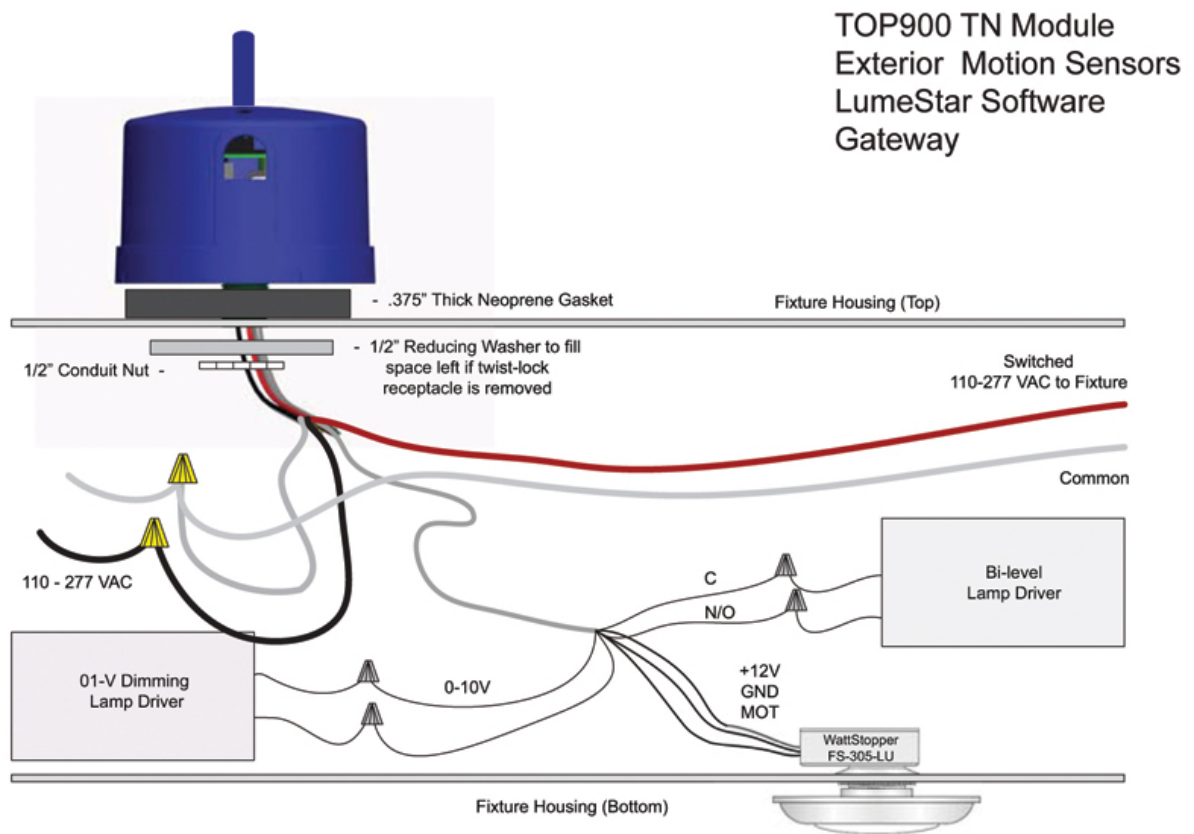
Lumewave 900 series modules mounted to each fixture automatically turn lighting on and off based on photocell settings:

- ON to 50% thirty minutes after sunset.
- Increases to 100% at dark. Motion detectors provide high/low operation of 100% to 50% based on the presence of people.
- Lumewave's Direction of Travel feature will determine the direction of movement and will bring up lighting on 1, 2 or 3 poles ahead.
- On to 70% one hour before sunrise.
- Switches completely off when the photocell thresholds have been reached

Motion sensors, pole-mounted throughout the pathways leading away from the lake, automatically bring lighting in that group back to 100% to illuminate the area for pedestrians and bicyclists.

- When motion is detected by any one of the sensors, all lighting in that group switches back to 100%.
- Fifteen minutes after the last sensor detects motion, lighting drops back down to 50%.

Products



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