



### Bluetooth Enabled Bi-directional Outdoor Radar based Sensor and Lighting Controller

Echelon's Lumewave MWX-LVE-180U is the market's first Bluetooth-enabled very long range radar-based sensor and controller specifically designed for controlling street, pathway and area lights. The MWX can differentiate between pedestrians and vehicles in real time, and can detect approaching vehicles at >400' and pedestrians at 100' and tell the difference.

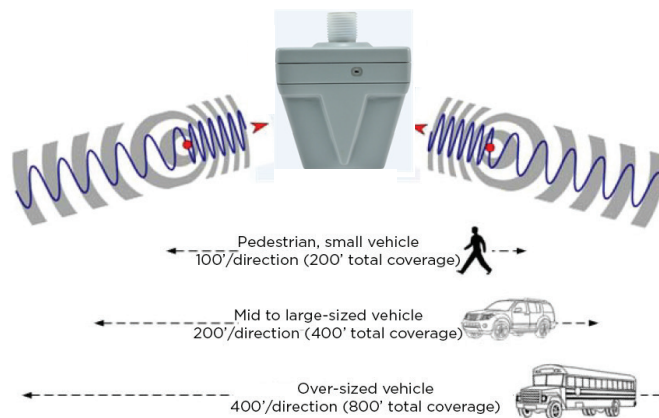
The robust MWX sensor was specifically designed for long term, outdoor conditions and has a directional range of 400' in each direction with total coverage of 800', which is 5 to 10 times greater than that of an infrared sensor

Unlike an IR sensor, it is not impaired by heat or bright light conditions and offers the flexibility of vertical or right angled mounting options. In addition, it is designed to offer optimal coverage even when mounted on a 30- 40' lamp pole.

The MWX can be connected to a Lumewave TOP900 Lighting Controller or the MWX-PP Smart Power Pack. When paired with the MWX-PP it can be used in a stand-alone mode and does not need to be connected to a lighting controller.

This flexibility opens up unique, new opportunities, increasing safety while saving energy and cost.

The free, downloadable control software runs on iPhones/iPads and uses Bluetooth 4.0 to communicate with each sensor, making it easy to modify control settings.



## Operating and Control Function Specifications

**Note:** When using the MWX-LVE180U with the Lumewave TOP900 Wireless Lighting controller, access to many Bluetooth controlled functions are limited as the Lumewave TOP900 controller handles these functions. In this case, the MWX-LVE180U is a long range motion sensor and active functions are highlighted below.

- Operating Voltage: 12Vdc (To be powered by UL listed Class 2 Power Source)
- Current: 60ma single sensor, 120ma dual direction
- Set Sensor Sensitivity: Direction A and/or B = High, Med, Low, Disable (individually)
- Set Motion Filter: Pedestrian and Vehicle
- Set Low Level Output: 5% - 50% (.50 - 5.0V)
- Select High Level Output: 50% - 100% (5.0 - 10V)
- Set Bi-Level timeout: 2, 5, 10, 15, 20, 25, 30 minutes
- Tri-level timeout: (Cutoff) 30, 60, 90, 120minutes
- Photo cell control: Enable/Disable, Dual light detectors. Automatic differentiation between sensors
- Neighbor Control Enable/Disable: Shares motion detection with other units within range for neighbor control
- Mechanical Noise Cancellation: Signal analysis cancels out non radar (mechanical) movement signals
- Test Enable/Disable Test function with automatic timeout
- Inactivity Timeout 5, 10 minutes
- Environmental: IP 65
- Certifications: FCC
- 5-year limited warranty\*

## Detection Range at 20' or 30' Mounting Height

- Range dependent on size and speed of target
- Pedestrian: 100'
- Small Vehicle: 165'
- Full size SUV: 200+
- Truck or Bus 400+

## Microwave (FFT Doppler based) Sensor

- Radar frequency: X Band, 10.250Ghz
- Power Output/Direction +17DBM, 50mw
- Power at 12Vdc 60ma/sensor/direction. 120ma when 2 sensor directions are active
- Detection Direction Single or Dual
- Filters/ Detects pedestrian and traffic movement together or individually (Selectable)
- Detection processing FFT simultaneously detects speed of pedestrian and traffic in real-time

## MWX Power Pack

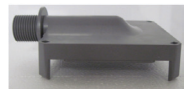
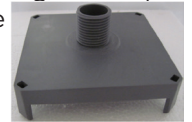
- Operating Voltage: 120 - 277Vac 50/60Hz
- Power switching: 10A, 277V General Purpose or Ballast
- Dimming Control: 0-10V (Sink or source)
- Size 3.50"X 2.50" x 1.00"
- Plastic UL 5VA Flame Retardant ABS, 3mm
- IP 65
- UL Listed

## Control Configurations

- MWX-LVE-180U (2-Way) Microwave Sensor w/4-wire interface to Lumewave Controllers
- MWX-LVE-180U (2-Way) Microwave Sensor + MWX-PP (Smart Power Pack)
- Use Smart Power Pack for stand-alone fixture control

## Sensor Mounting Configurations

- Mounting: 2 interchangeable tops supplied to provide multiple mounting configurations
- Mounting via vertical NTP 1/2" threaded nipple
- Mounting via right angle NTP 1/2" threaded nipple



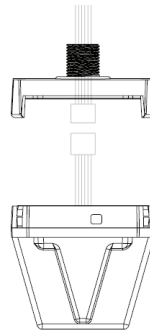
## MWX Control Application Software

- Control application software may be downloaded at no cost and run on an iPhone/ iPad which will use Bluetooth 4.0 to communicate with each sensor to set and modify its control settings
- The iPhone/iPad application is used to setup and manage sensors



## Cable Connections

The MWX-LVE-180U comes with a cable with connector.



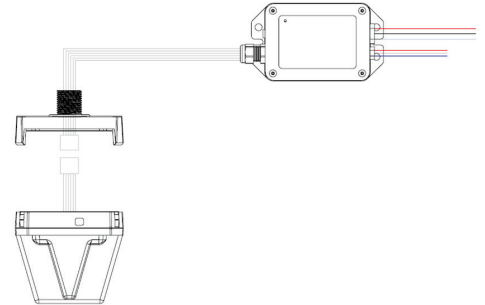
## MWX- LVE-180U Connection to Lumewave TOP900 Lighting Controller

A separate cable (PN# 600606 ) is required to interface with Lumewave controllers and modules (TOP900 and EMB series). This cable plugs into the connector on the MWX-180U and has flying leads that connect to the TOP900 or EMB controller's low voltage control wires. MWX-LVE-180U connection to Lumewave (or other compatible) Controller.

- 4 wire connection cable with flying-leads
- Red +12Vdc
- Black GND (dc)
- Blue Motion (Open collector, Active Low = Motion)
- Green: Flash lamp 3X when Bluetooth connects and when connected to TOP900TL, TOP900TN, and EMB900 series lighting controllers lighting controllers

## MWX- LVE-180U Connection to MWX-PP Connection

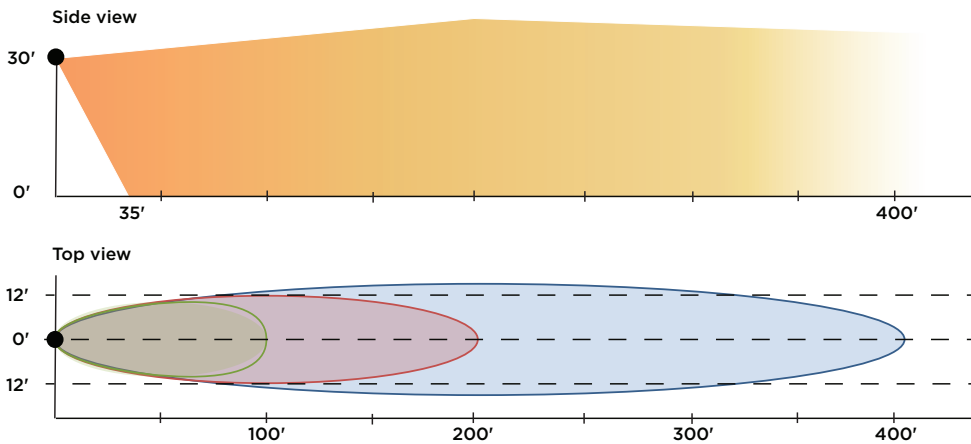
- The MWX-PP "Smart Power Pack" provides standalone fixture integration with the MWX-180U. The MWX-PP connects to the MWX-180U using a prewired cable and connector.
- When using the MWX-LVE-180U with the MWX-PP (smart dimming power pack) the power pack will control the power to the lamp fixture as well as dim it 0-10V



## Models

- MWX-LVE-180U (2-Way) Microwave Sensor. **PN# 100120**
- MWX-PP Smart Power Pack (Used for stand-alone fixture control) **PN# 100121**

## Single Sided Coverage Patterns for MWV-LVE-180U Sensor



Coverage patterns shown above are for 30' mounting height, with sensor set for maximum sensitivity (high)

Top View Coverage Legend	
	Pedestrians and small vehicles
	Mid to large-sized vehicle (SUV, truck, van)
	Over-sized vehicle (bus, trailer)

### Notes:

1. Detects targets moving toward or away from sensor, not targets moving perpendicular to sensor.
2. Vehicle detection distance can vary depending on vehicle speed, direction of travel, line of sight to sensor, and sensor mounting parameters.
3. Detection distance at medium sensitivity is approximately 2/3 of maximum (shown above). Coverage at low sensitivity is approximately 1/2 of maximum.