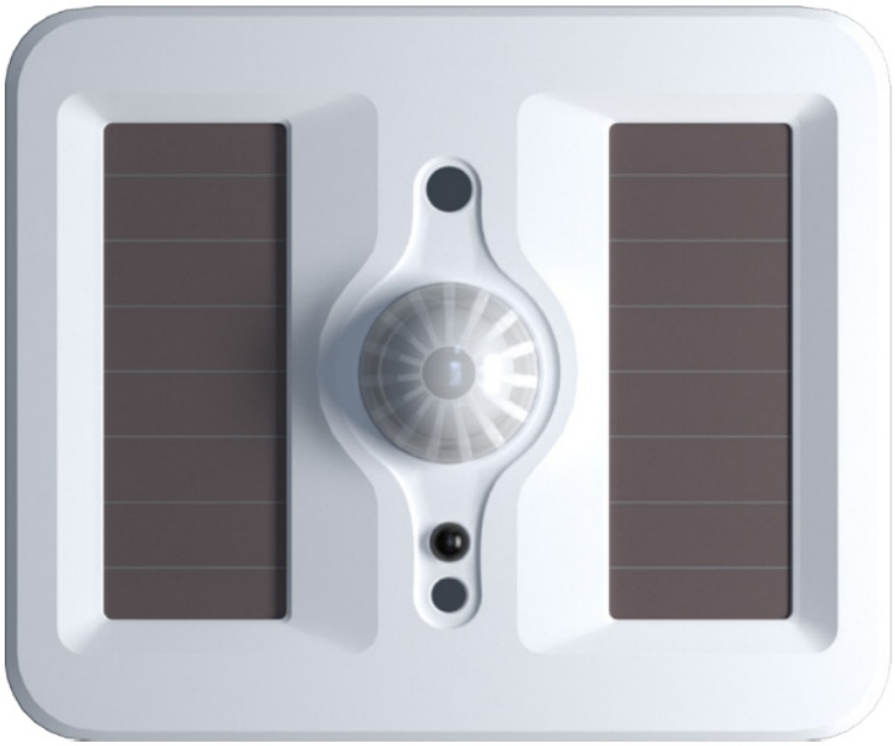
MAGNUM FIRST M9-ML2 Lux Sensor Installation Guide

Contents

MAGNUM FIRST M9-ML2 Lux Sensor



Product Information

Motion/Lux Sensor M9-ML2

Description
The M9-ML2 Motion / Lux Sensor is an EnOcean wireless sensor that detects motion and light levels.

Operation
The M9-ML2 operates wirelessly using EnOcean technology. It can be paired with compatible devices within wireless range to trigger actions based on motion and light levels.

Applications
The M9-ML2 can be used for a variety of applications such as lighting control, HVAC control, and security systems.

Technical Specifications

- **Part Numbers (Frequency Dependant):** M9-ML2 (902 MHz – North America), M8-ML2 (868 MHz – Europe and China), MJ-ML2 (928 MHz – Japan)
- **Range:** 150 feet (50-150 typical)
- **EnOcean Profiles:**
  - A5-07-03 (Default) – Occ, Supply Voltage, Illumination 0-1000lx
  - F6-02-01 – Rocker On/Off, Occ Only
  - A5-06-02 – Illumination 0-1020lx only
  - A5-07-01 – Occ, Supply Voltage
  - A5-07-02 – Occ, Supply Voltage
  - A5-08-01 – Occ, Supply Voltage, Illumination 0-510lx
  - A5-08-02 – Occ, Supply Voltage, Illumination 0-1020lx
  - A5-08-03 – Occ, Supply Voltage, Illumination 0-1530lx

To select profiles other than the default, utilize the MES software for configuration AirConfig Tool*. (email support@magnumfirst.com for download instructions)

- Light Sensor Default Transmission Interval
- Default Unoccupied Send Delay
- Minimum Light Required to Charge
- Minimum Charge Time to Begin Operation
- Full Charge Time
- Maintain Charge Time
- Operation Life at Full Charge (no battery)
- Optional Battery Life
- Operating Temperature
- Detection Distance (PIR Sensor)
- Detection Range (Horizontal & Vertical) (PIR Sensor)

Product Usage Instruction

Dimensions

- **Length:** 3.17 inches (80.52 mm)
- **Width:** 4.02 inches (102.11 mm)
- **Depth:** 2.96 inches (75.18 mm)

User Instructions
UPON RECEIVING ML2 FOLLOW THE STEPS BELOW.

1. Insert the provided battery into the ML2
2. To ensure proper operation of the device, press and release the learn button and you should see the LED flash once
3. Repeat Step 2 twice for a total of 3 times
4. If the LED does not flash, remove the battery and wait 5 seconds. Then reinstall the battery and repeat Step 2
5. The device is now ready for pairing if so desired

FOR BATTERY-FREE OPERATION, place the device under bright light for 8 hours to attain a full charge before operating

Compatible Devices
Please refer to the corresponding device installation guides to review the process of learning this sensor with compatible devices.

Mounting
Refer to the images below for mounting instructions:

Coverage
Refer to the images below for coverage information:

Sensor Placement

The M9-ML2 can be placed in various locations depending on the application. Refer to the images below for placement examples:

Troubleshooting
If you encounter any issues with your M9-ML2, please contact Magnum First at phone 716-293-1588 or email **info@magnumfirst.com** for assistance.

Description

The Magnum Innovations Motion and Lux sensor (Mx-ML2) is a wireless, self-powered, passive infrared sensor that ensures reliable detection of occupant presence. The Mx-ML2 is ideally suited for occupancy-based lighting control and also provides for indoor daylight harvesting functionality, with a light range of 0-1020lx. When paired with a relay (Mx-USR-L1) and a wireless rocker switch (Mx-ESRP), the sensor creates an out-of-the-box, cost-effective, lighting control system. When combined with a Magnum gateway (Mx-EBOX), the Mx-ML2 can be integrated into an existing BACnet-compatible building automation system.

Operation

Built-in solar cells draw and store energy from available ambient light to power the device and keep it operational during periods of darkness. The device must be placed at the location where sensing is required and this location is dependent on individual application (refer to Sensor Placement Tips below). An optional battery backup is available for locations with low or no ambient light. The Mx-ML2 must be paired with a receiver (refer to the Compatible Devices section). The device can be paired manually to compatible devices by pressing the LRN button while following the pairing instructions for the receiver. For more sophisticated configuration, please refer to the MES AirConfig tool (email support@magnumfirst.com for download instructions) .The sensor can be mounted using screws or simply placed in a selected location with double-stick tape. It is recommended that the pairing of this device be done prior to installing the ceiling sensor.

Applications

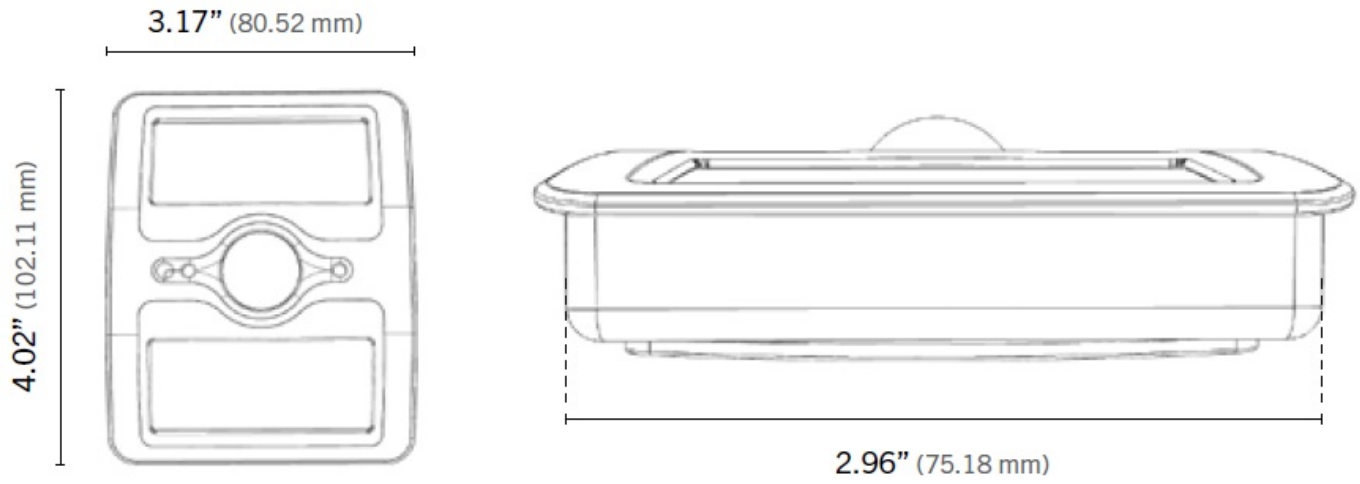
- Hotels & Resorts
- Retrofits
- Executive Offices
- Perimeter Zones
- Restrooms
- Private Offices
- New Construction
- Classrooms
- Cruise Ships
- Daycare Facilities
- Colleges & Universities
- Conference Rooms
- Lighted Hallways
- Daylight Harvesting
- And more.

Specifications

Part Numbers (Frequency Dependant)	M9-ML2 (902 MHz – North America) M8-ML2 (868 MHz – Europe and China) MJ-ML2 (928 MHz – Japan)
Range	150 feet (50-150 typical)
EnOcean Profiles To select profiles other than default, utilize the MES software for configuration “AirConfig Tool *”. **(email support@magnumfirst.com for download instructions)**	A5-07-03 (Default) – Occ, Supply Voltage, Illumination 0-1000lx F6-02-01 – Rocker On/Off, Occ Only A5-06-02 – Illumination 0-1020lx only A5-07-01 – Occ, Supply Voltage A5-07-02 – Occ, Supply Voltage A5-08-01 – Occ, Supply Voltage, Illumination 0-510lx A5-08-02 – Occ, Supply Voltage, Illumination 0-1020lx A5-08-03 – Occ, Supply Voltage, Illumination 0-1530lx

Light Sensor	0-95 FC (0-1020 Lux)
Default Transmission Interval	Immediate upon detected occupancy (Status signal sent every 15 minutes)
Default Unoccupied Send Delay	5 minutes (Adjustable via airConfig Tool*)
Minimum Light Required to Charge	4FC (40 Lux)
Minimum Charge Time to Begin Operation	1 minute @ 20FC (200 Lux)
Full Charge Time	8 hours (approx) @100FC (1000 Lux)
Maintain Charge Time	3 hours per 24 hours @ 20FC (200 Lux)
Operation Life at Full Charge (no battery)	up to 72 hours
Optional Battery Life	10 years (1/2AA 3.6V Lithium)
Operating Temperature	-3°F to 140°F (20°C to 60°C)
Detection Distance (PIR Sensor)	39 ft (12 m)
Detection Range (Horizontal & Vertical) (PIR Sensor)	102° x 92°

Dimensions



User Instructions

UPON RECEIVING ML2 FOLLOW THE STEPS BELOW

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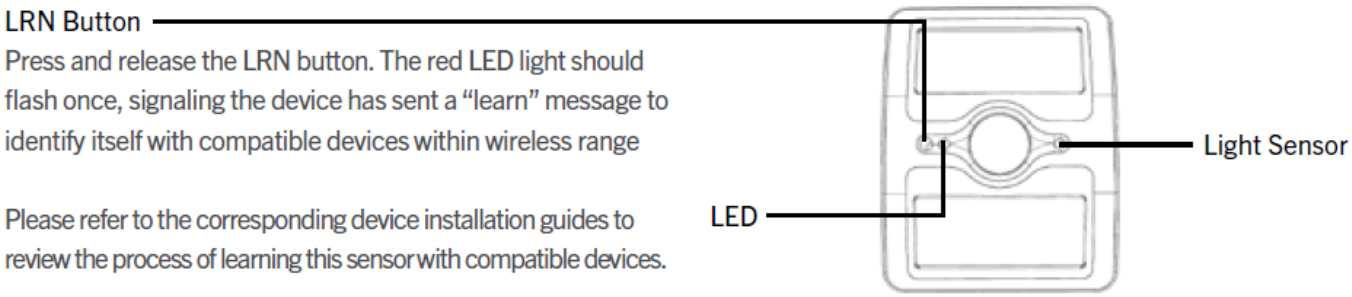
PAIRING



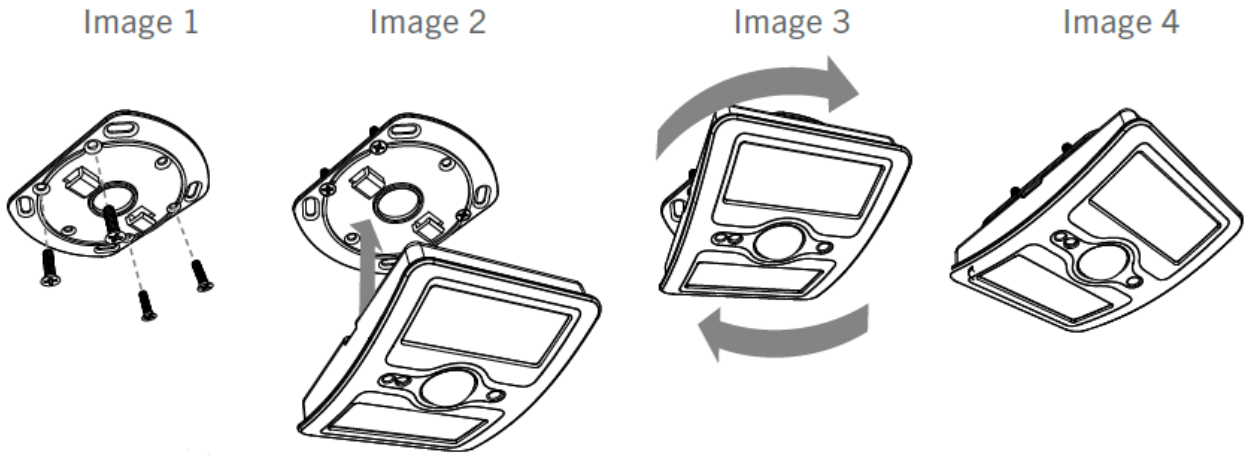
- **NOTE:** It is recommended that pairing of the device be done prior to installing the ceiling sensor
- **NOTE:** Use a non-metallic pin when pressing the Learn Button

Compatible Devices

- M9-TS1 (24V Intelligent Thermostat with 4.3" LCD)
- M9-PFC-EO2037 (24V Thermostat)
- M9-UTR-L1 (Two-Channel Lighting Control Module)
- M9-AP2 (Access Point)
- M9-PFC-EO2036 (Line-Voltage Thermostat)

- M9-USR-L1 (Single Channel Lighting Control Module)
- M9-eBox (BACnet IP Gateway)
- M9-ILS2 (Integrated Light Switch)

Mounting



Ceiling Mount (With Screws):

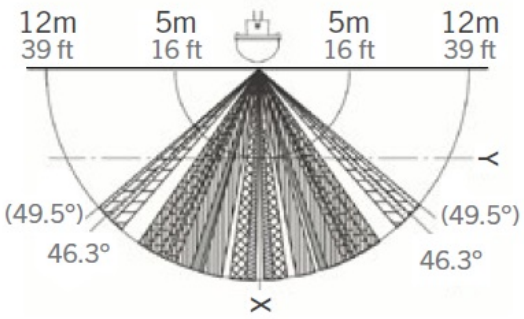
1. Mount the backplate to the ceiling with the four provided screws (see Image 1)
2. Attach the body of the sensor to the backplate by rotating until locked into place (see Images 2-4)

Ceiling Mount (With Tape:

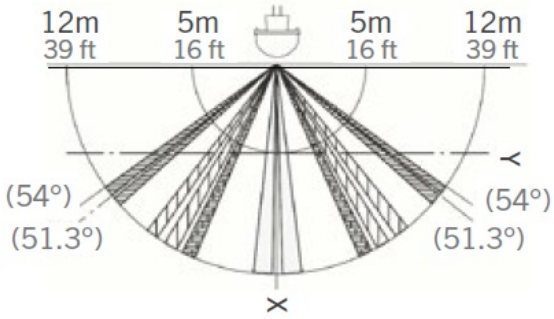
1. Peel the layer off double stick tape and place one side onto the back of the sensor housing.
2. When ready to place, peel another layer off the tape and firmly push the motion sensor onto the surface, and hold for 30-60 seconds.

Coverage

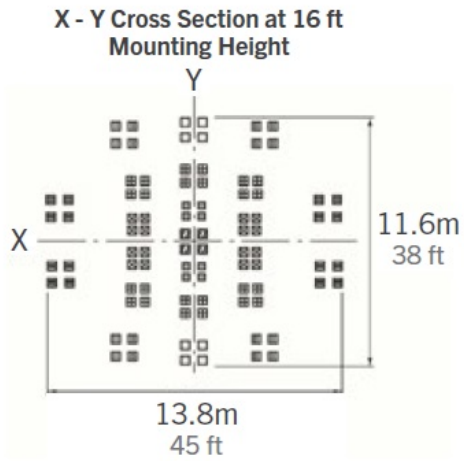
Side View 1



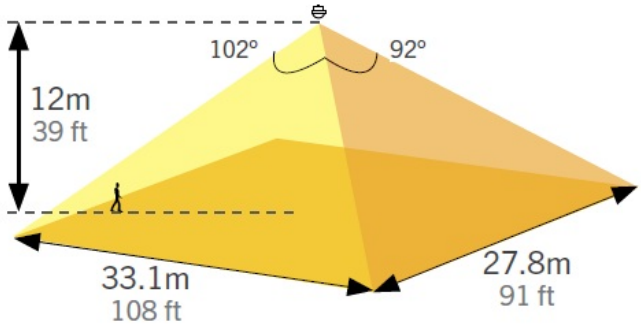
Side View 2



Top View

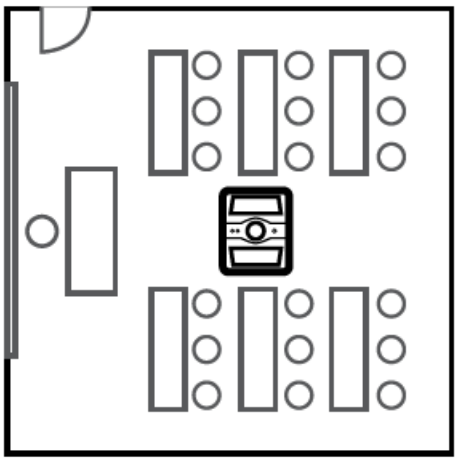


Long Distance Detection Type

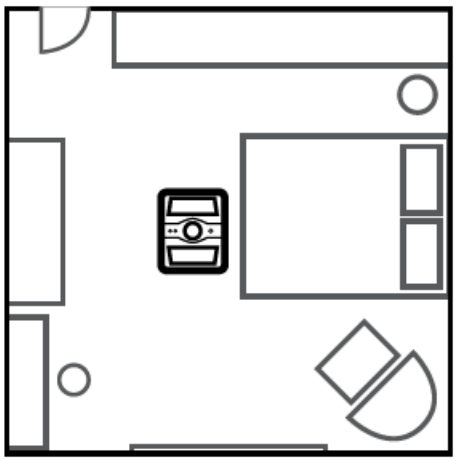


Sensor Placement

Classroom



Hotel Room



Sensor Placement Tips:

1. Do not mount the sensor near obstacles that could potentially block the sensor's line of sight.
2. Keep sensors 10-15ft away from heating vents and radiators. If a sensor detects a rapid change in heat, it could inaccurately detect occupancy.
3. If mounting on a wall or in a corner (anywhere other than the ceiling) aim the sensor towards the likely entry point.
4. If the sensor is to be used to control lights based on occupancy and perform daylighting controls, and there is a

question related to appropriate placement, please refer to the guidance herein or call tech support at 330.656.9365.

NOTE:
Remember this device is charged and operates using the light in the room, if there are several mounting location choices, choose the brightest option.

Troubleshooting

1. Verify the LED flashes when the LRN button is pressed and released
2. If the LED light does not blink, check to see if the device is equipped with a backup battery
3. If the device has no backup battery, place the sensor under light, allowing it to charge
4. If the LED still does not flash after the LRN button is pressed and released, the sensor could be defective.
5. If the device includes a backup battery, then the battery might need to be replaced.

Warranty

U.S. Two-year Limited Warranty: Products purchased in the U.S.A. are warranted for two years from the date of purchase by Magnum Innovations to be free of defects in materials and workmanship. In the event of such defect, the product will be repaired promptly without charge or, at our option, replaced with a new product of equal or superior value if delivered to Magnum or an Authorized Service Center, prepaid, together with the sales slip or other proof of purchase date. This warranty excludes defects due to normal wear, abuse, shipping damage, or failure to use the product in accordance with instructions. This warranty is void in the event of unauthorized repair or modification, or removal or defacing of the product labeling. The Magnum warranty specified herein covers material only and does not include labor or incidental costs associated with product replacement or repair.

Magnum First – 1 Seneca Street, 29th Floor, M55 – Buffalo, NY 14203 – phone 716-293-1588 – **www.magnumfirst.com** – **info@magnumfirst.com**.

Documents / Resources

	**MAGNUM FIRST M9-ML2 Lux Sensor** [pdf] Installation Guide M9-ML2 Lux Sensor, M9-ML2, Lux Sensor, Sensor

References

- **BMS | Building Management Systems | Magnum First**