High Frequency Microwave Sensor 0-10V Dim

Cat. No. OSM3D-DDW

400W @ 120VAC - **Tungsten** 800W @ 120VAC - **Driver**/**Ballast**

1000W @ 277VAC - **Driver**/**Ballast**

Operating Temperature: -35°C to 70°C **Relative Humidity:** 20% to 90% non-condensing

Rating: 120-277VAC 50Hz/60Hz

DI-001-OSM3D-05A

INSTALLATION INSTRUCTIONS

WARNINGS & CAUTIONS:

- **TO AVOID FIRE, SHOCK, OR DEATH; TURN OFF POWER** at circuit breaker or fuse and test that the power is off before wiring or servicing luminaire or changing bulbs!
- **TO AVOID FIRE, SHOCK, DEATH, OR DAMAGE TO PROPERTY, DO NOT** control a load in excess of the specified ratings. Check your load ratings to determine the unit's suitability for your application.
- To be installed and/or used in accordance with appropriate electrical codes and regulations.
- If you are not sure about any part of these instructions, consult an electrician.

WARNINGS & CAUTIONS:

- **DO NOT** attempt to disable or repair.
- Use this device with **COPPER OR COPPER CLAD WIRE ONLY**.

NOTE:

- Microwaves cannot pass through metal or brick walls if thicker than 7.75 in. (20 cm). They will pass through thinner walls but there will be some attenuation.

INSTALLATION — ENGLISH

DESCRIPTION

The OSM3D-DDW is a 5.8 GHz high frequency microwave motion sensor designed to provide additional energy savings with 0-10V dimming. It will switch luminaire ON when motion is detected and OFF after the set Hold Time expires when there is no motion detected.

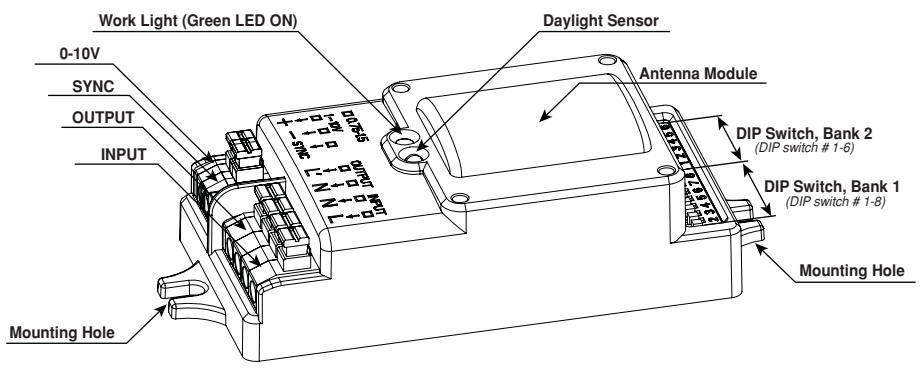
A built-in Daylight Sensor reads brightness value, so that the sensor will not switch the luminaire ON if there is sufficient ambient light present. Add a Leviton® 0-10V external Daylight Sensor *(ODC0P-D0W sold separately)* to achieve daylight harvesting.

The sensor uses microwave technology (similar to ultrasonic technology). Microwaves are extremely sensitive, omni-directional and will penetrate through most building construction materials. Microwaves do not pass through metal and is the one material used to control the direction of the microwave detection.

FEATURES

- Automatic switching or dimming when used in combination with 0-10V dimmable LED drivers or ballasts.
- Built-in Daylight Sensor.
- 0-10V interface can be linked to a *Leviton* low voltage photocell *(ODC0P-D0W sold separately)* to achieve daylight harvesting.
- 5.8 GHz high frequency microwave detection technology.
- Compact size makes it suitable to fit within most luminaires.
- 7-position terminal block, easy assembly.
- 2 types of installation, base mounting and flush mounting, suitable for different luminaires.
- Detection Area, Hold Time and Daylight Sensor can be precisely set via DIP switches.
- Supports higher mounting height up to 40' (12 m) max.
- Wide Detection Area, range up to 52' (16 m) in diameter.
- 5 year warranty.

Fig. 1



FUNCTIONS

ON/OFF *(Wiring diagram 1)***:** The sensor will switch lights ON when motion is detected, and OFF after the set Hold Time has expired when no motion is detected. A built-in Daylight Sensor reads brightness value in the area, so that the sensor will not switch the lights ON if there is sufficient natural light present. The threshold can be adjusted from 100 lux to 50 lux, 25 lux, 10 lux, 5 lux and 2 lux.

- When sufficient ambient light is present, the sensor does not switch ON the luminaire.
- When there is insufficient ambient light, the sensor switches ON the luminaire when motion is detected.
- After the set Hold Time, the sensor switches OFF the luminaire when no motion is detected.

3-Step Dimming *(Wiring diagram 2)***:** 0-10V luminaire are controlled by several sensors tied together through the SYNC connection. When motion is detected by any one of the sensors a signal is transmitted to the other sensors. Then, all luminaires switch ON at the same time.

- When motion is detected from any direction, all luminaires switch ON at the same time.
- When no motion is detected in the Detection Area, all luminaires dim to the set Stand-by Dim Level at the same time after the set Hold Time expires.
- After the Stand-by Period, the luminaires switch OFF if no motion is detected in the Detection Area.
- When no motion is detected, all luminaires switch OFF.

Daylight Harvesting *(Wiring diagram 3)***:** When used in combination with an 0-10V external Daylight Sensor *(ODC0P-D0W sold separately)*, the system has automated controls that either turn OFF or DIM artificial light in response to the available daylight in the space.

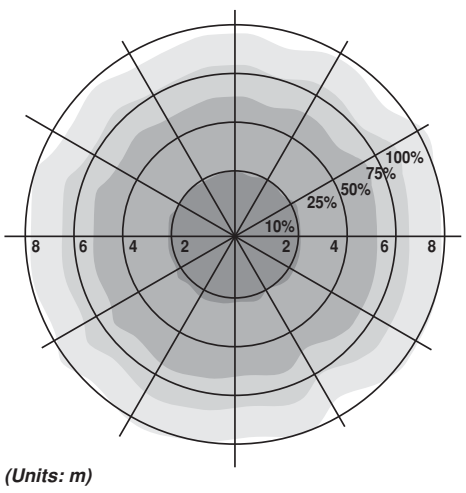
NOTE: The preset illumination level is set at the 0-10V external Daylight Sensor.

- When ambient is light greater than the preset illumination level, the luminaire does not switch ON.
- When ambient is light less than the preset illumination level, the luminaire switches ON when motion is detected.
- The luminaires switch ON to 100% or DIM to maintain the preset illumination level against the level of ambient light.
- When sufficient ambient light is present the luminaire switches OFF, even if motion is detected.
- When there is insufficient ambient light, the luminaires DIM to the Stand-by Dim Level when no motion is detected after the Hold Time expires, and then switches OFF after the Stand-by Period.
  NOTE: The Stand-by Dim Level is set at the motion sensor.

DETECTION AREA

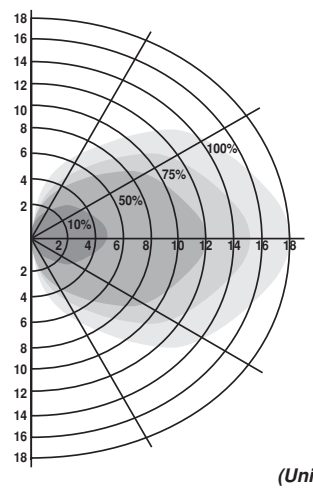
The coverage area, or field of view, of the OSM3D-DDW is designed to cover a 32 ft. (10 M) radius space when mounted at a typical 40 ft. (12 M) above the floor. This monitored space is in the form of a cone radiating from the center of the sensor.

Ceiling Pattern
(10-40 ft. [3-12 m] height)



(Units: m)

Wall Pattern
(3- 6 ft. [1-1.8 m] height)



(Units: m)

INSTALLATION

1. **WARNING: TO AVOID FIRE, SHOCK, OR DEATH; TURN OFF POWER** at circuit breaker or fuse and test that the power is off before wiring or servicing luminaire or changing bulbs!
2. Mount in a listed junction box or enclosure only. There are two types of installation, base-mounting *(fig. 2)* and flush-mounting *(fig. 3)*, suitable for different luminaire. Mounting hardware is not provided.
3. Connect wires per appropriate **Wiring Diagram** as follows:
   - **INPUT:** Strip wires approx. 3/8" (.95 cm) and insert into push-in-terminals. Line Hot wire to INPUT terminal marked **L**; Line Neutral wire to INPUT terminal marked **N**.
   - **OUTPUT:** Strip wires approx. 3/8" (.95 cm) and insert into push-in-terminals. Load Hot wire to OUTPUT terminal marked **L**; Load Neutral wire to OUTPUT terminal marked **N**.
   - **0-10V:** Strip wires approx. 3/8" (.95 cm) and insert into push-in-terminals. 0-10V + *(Violet)* wire to 0-10V terminal marked **+**; 0-10V - *(Gray)* wire to 0-10V terminal marked **-**.
   - **SYNC:** Strip wires approx. 3/8" (.95 cm) and insert into push-in-terminals. SYNC terminal/wire connects multiple sensors together for the 3-step dimming and daylight harvesting functions.

     NOTE: Push-in-terminals accept #22-#16 AWG wire.
4. Restore power at circuit breaker or fuse.

NOTE: Allow approximately two minutes for charge-up. If the lights turn ON and the LED blinks when a hand is waved in front of the sensor, then the unit was installed properly. If the operation is different, refer to the Troubleshooting Section. The Sensor is factory preset to work without any adjustments.

Fig. 2 *(Base mounting)*

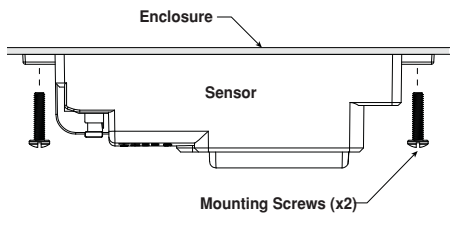
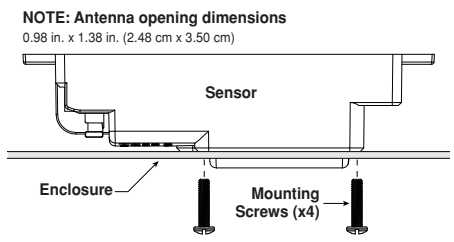


Fig. 3 *(Flush mounting)*



NOTE: Mounting hardware not provided.

SETTINGS

Detection Area, Hold Time, Stand-by Period, Daylight Sensor and Stand-by Dim Level can be set by using DIP switches on the sensor.

NOTE: Reducing the Detection Area will also reduce the sensitivity. Adjust the DIP switches as needed for your specific application.

Fig. 4

ON

1	2	
ON	ON	100%
ON	-	75%
-	ON	50%
-	-	10%

Detection Area: *DIP Switches #1-2, Bank 1*

The sensitivity can be reduced from 100% to 75%, 50% or 10% by selecting the correct combination of DIP switch settings shown *(fig. 4)*.

Fig. 5

ON

3	4	5	
ON	ON	ON	5s
-	ON	ON	5min
ON	-	ON	10min
-	-	ON	20min
ON	ON	-	30min
-	-	-	+∞

Hold Time: *DIP Switches #3-5, Bank 1*

The amount of time the luminaire remain at 100% after no motion is detected. The time can be adjusted from 5s to 5min, 10min, 20min, 30min, and +∞ by selecting the correct combination of DIP switch settings shown *(fig. 5)*.

NOTE: When set to +∞ the sensor function will be inactive.

Fig. 6

ON

6	7	8	
ON	ON	ON	0s
-	ON	ON	5s
ON	-	ON	5min
-	-	ON	10min
-	ON	-	1hr
-	-	-	+∞

Stand-by Period: *DIP Switches #6-8, Bank 1*

The amount of time the luminaire remains at the Stand-by Dim Level before completely switching OFF in the absence of motion. The time can be adjusted from 1hr to 30min, 10min, 5min, 5s, 0s and +∞ by selecting the correct combination of DIP switch settings shown *(fig. 6)*.

NOTE: When set to 0s the luminaire switch ON/OFF only.
NOTE: When set to +∞ the Stand-by Dim Level will be maintained until motion is detected.

Fig. 7

ON

1	2	3	4	
-	-	ON	ON	2 lux
-	-	-	ON	5 lux
-	ON	ON	-	10 lux
-	-	ON	-	25 lux
-	ON	-	-	50 lux
ON	-	-	-	100 lux
-	-	-	-	Disable

Daylight Sensor: *DIP Switches #1-4, Bank 2*

The sensor can be set to only allow the luminaire to illuminate below a defined ambient brightness threshold. The threshold can be adjusted from 100 lux to 50 lux, 25 lux, 10 lux, 5 lux, and 2 lux. When set to Disable, the Daylight Sensor will switch ON the luminaire when motion is detected regardless of the ambient light level *(fig. 7)*.

NOTE: The Daylight Sensor is only active when the luminaire is completely switched OFF.
NOTE: This option should be set to Disable if a 0-10V external Daylight Sensor *(ODC0P-D0W sold separately) is used*.

Fig. 8

ON

5	6	
ON	ON	50%
-	ON	30%
ON	-	20%
-	-	10%

Stand-by Dim Level: *DIP Switches #5-6, Bank 2*

The pre-set dim level the luminaires will switch to when the Hold Time expires *(fig. 8)*.

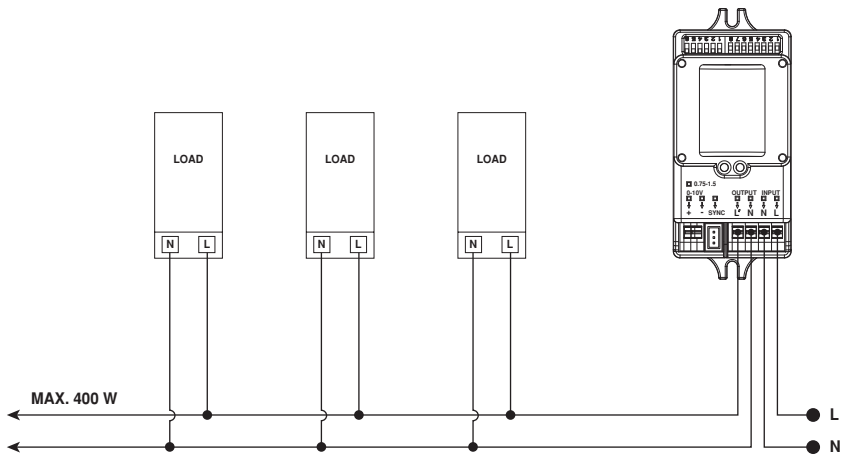
TROUBLESHOOTING

- **Lights will not turn ON**
  - Sensor is wired incorrectly, confirm that the sensor's wiring is done correctly and inspect visually for problems.
  - Incorrect Daylight Sensor setting selected, adjust setting.
- **Lights will not turn OFF**
  - Sensor is wired incorrectly, confirm that the sensor's wiring is done correctly and inspect visually for problems.
  - Make sure the luminaire is installed with at least 1 ft. (30 cm) of space between the luminaire and surrounding reflective surfaces, i.e. metal, glass or concrete walls.
  - Detection Area set improperly, adjust DIP switches *#1-2, Bank 1*.
- **Lights turn OFF and ON too quickly**
  - Detection Area set improperly, adjust DIP switches *#1-2, Bank 1*.
  - Hold Time set improperly, adjust DIP switches *#3-5, Bank 1*.

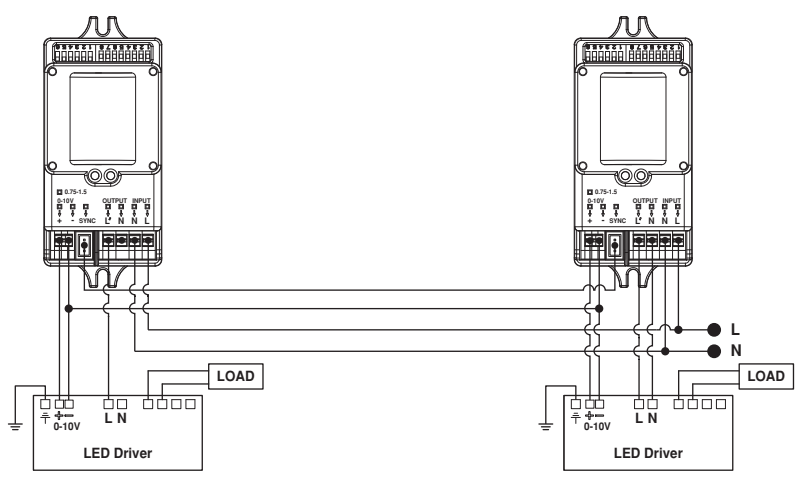
WEB VERSION

WIRING DIAGRAMS

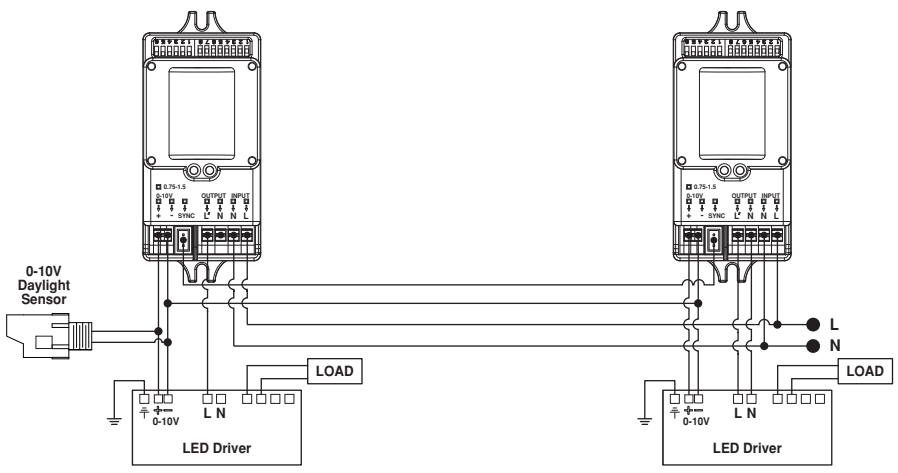
ON/OFF Function *(Wiring diagram 1):*



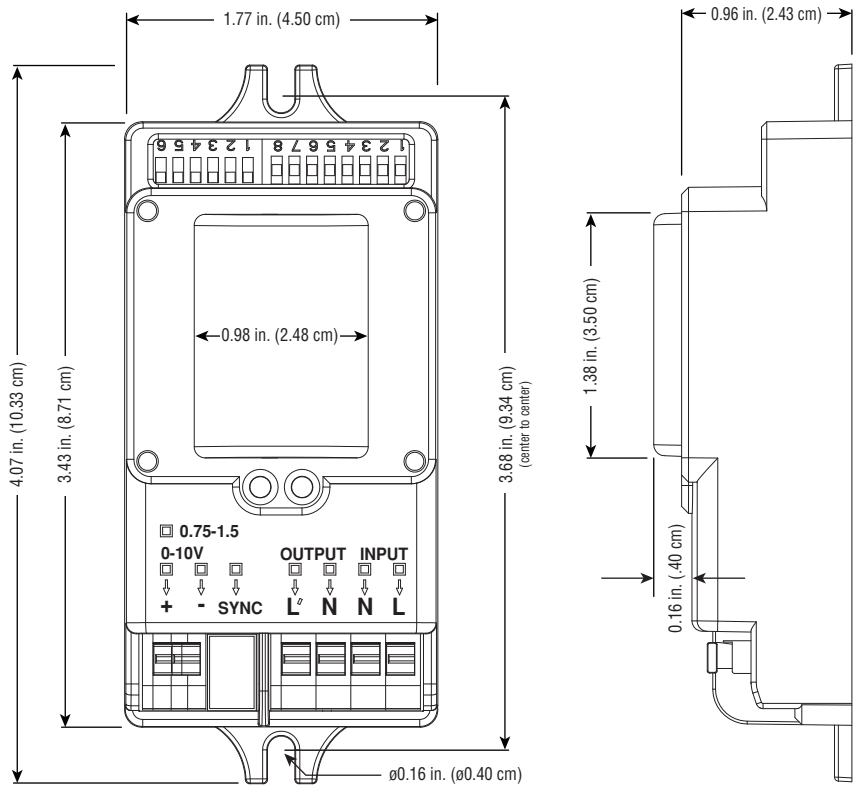
3-Step Dimming *(Wiring diagram 2):*



Daylight Harvesting *(Wiring diagram 3):*



DIMENSIONS



FCC COMPLIANCE STATEMENT

Contains FCC ID: 2AI53-MC601V

This device complies with Part 15 of the FCC Rules. Operation is subject to following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment OFF and ON, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC CAUTION

Any changes or modifications not expressly approved by Leviton Manufacturing Co., Inc., could void the user's authority to operate the equipment.

INDUSTRY CANADA COMPLIANCE STATEMENT

Contains IC: 21718-MC601V

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

FOR CANADA ONLY

For warranty information and/or product returns, residents of Canada should contact Leviton in writing at **Leviton Manufacturing of Canada Ltd to the attention of the Quality Assurance Department, 165 Hymus Blvd, Pointe-Claire (Quebec), Canada H9R 1E9** or by telephone at **1 800 405-5320.**

LIMITED 5 YEAR WARRANTY AND EXCLUSIONS

Leviton warrants to the original consumer purchaser and not for the benefit of anyone else that this product at the time of its sale by Leviton is free of defects in materials and workmanship under normal and proper use for five years from the purchase date. Leviton's only obligation is to correct such defects by repair or replacement, at its option. **For details visit www.leviton.com or call 1-800-824-3005.** This warranty excludes and there is disclaimed liability for labor for removal of this product or reinstallation. This warranty is void if this product is installed improperly or in an improper environment, overloaded, misused, opened, abused, or altered in any manner, or is not used under normal operating conditions or not in accordance with any labels or instructions. **There are no other or implied warranties of any kind, including merchantability and fitness for a particular purpose**, but if any implied warranty is required by the applicable jurisdiction, the duration of any such implied warranty, including merchantability and fitness for a particular purpose, is limited to five years. **Leviton is not liable for incidental, indirect, special, or consequential damages, including without limitation, damage to, or loss of use of, any equipment, lost sales or profits or delay or failure to perform this warranty obligation**. The remedies provided herein are the exclusive remedies under this warranty, whether based on contract, tort or otherwise.