PRECAUTIONS

- Read and understand all instructions before beginning installation.
- **CAUTION: FOR USE WITH CLASS 2, LOW VOLTAGE SYSTEMS ONLY. DO NOT USE IN HIGH VOLTAGE APPLICATIONS.**
- **NOTICE:** For installation by a licensed electrician in accordance with National and/or local Electrical Codes and the following instructions.
- Confirm device ratings are suitable for application prior to installation. Use of device in applications beyond its specified ratings or in applications other than its intended use may cause an unsafe condition and will void manufacturer's warranty.
- Use only approved materials and components (i.e. wire nuts, electrical box, etc.) as appropriate for installation.
- **NOTICE:** Do not install if product appears to be damaged.

SAVE THESE INSTRUCTIONS!

DESCRIPTION

NX Ceiling Mount and Wall Mount Occupancy Sensors employ passive infrared, ultrasonic, and acoustic sensing technologies to turn lighting on and off based on occupancy. These sensors represent the state-of-the-art in sensor technology and are designed to provide accurate turn-on while virtually eliminating false-offs. The sensors feature patented IntelliDAPT® technology, which makes all the sensor adjustments automatically. Throughout the product's lifespan, smart software analyzes the controlled area and makes digital adjustments to sensitivity and timer settings. Occupancy sensors with IntelliDAPT provide a maintenance-free "Install and Forget" operation.

SPECIFICATIONS

Power Requirements	Powered by *NX* Room Controller using wiring adapter and plenum rated CAT5 plug and play cables (sold separately)
Sensing Technology	Dual Technology (Passive Infrared and Ultrasonic)
Coverage	500 sq ft to 2,000 sq ft
Environment	Indoor use only
Warranty	Five-year limited warranty

OCCUPANCY SENSOR COVERAGE AND PLACEMENT

- The patterns for range coverage are provided below. Closely follow the range diagrams for major and minor motion coverage.
- Sensor must have an unobstructed view of the room. Do not mount behind or near tall cabinets, shelves, hanging fixtures, etc.
- Keep the sensor away from air flow – at least 4 feet from HVAC vents.
- For interior use only. These sensors should not be installed in damp locations such as near a shower or steam source, in wet locations, or where exposed to rain.
- Do NOT install wall mount sensor in view of strong direct or reflected light sources.
- Decrease total coverage area by 15% for "soft" rooms (for example, heavy draperies or heavy carpeting).
- Indicated ranges are based on mounting heights of 8'-12'. Ceiling and wall mounted sensors should not be mounted on ceilings or walls above 12'.

CEILING MOUNT SENSOR INSTALLATION

1. Mount the sensor. The sensor must be mounted on the ceiling for proper operation. An arrow is molded into the mounting plate of the sensor. This should be used as a general guideline to the direction of the coverage pattern. Fine tuning will be explained later. Mounting options:
   - For hard ceilings: Mount to a junction box.
   - For false ceilings: Attach the cover plate by either using machine screws and punching a small hole through the ceiling tile for the sensor wires (See Figure 1) OR using the threaded mounting post then running the sensor wires through the center of the post (See Figure 2).
2. Attach the sensor to the mounting plate by aligning the keys in the mounting plate with those in the sensor housing. Rotate the sensor housing until proper orientation is achieved.
3. Plug the CAT5 cable into any available SmartPORT™ on the NX™ Room Controller (See Figure 8). Verify solid snap-in connection.
4. Route the CAT5 cable from the Room Controller to the Occupancy Sensor. ***NOTE: Low voltage wiring must be isolated from line voltage wiring. Consult National and Local Electrical Codes for conduit requirements.***
5. Plug the CAT5 cable into the Occupancy Sensor's RJ45 Adapter. Verify solid snap-in connection.
6. The sensor is equipped with the isolated relay that can be used to interface the sensor with an auxiliary system. Normally open and normally closed contacts are available. For normally open contacts, utilize the Yellow/White (N.O.) and Blue/White (common) wires. For normally closed contacts, utilize the Black/White (N.C.) and Blue/White (common) wires. If the isolated relay is not going to be used, insulate all exposed leads with Listed/Certified electrical tape or twist-on connectors (wire nuts).
7. The sensor is also equipped with an ambient light level control. This will normally not be used with the *NX* Control System. Insulate the Grey wire with Listed/Certified electrical tape or twist-on connector.
8. Confirm the correct coverage by simulating motion in the coverage area which will be typical for the application. If the desired coverage is not achieved, relocate the sensor to produce the desired coverage. To test the sensor, remove the lens retainer and lens. Turn the black timer knob fully clockwise then fully counterclockwise. Replace lens and retainer. The lights will now turn off 8 seconds after motion stops. To exit test mode, remove lens and retainer and reset black timer knob.

WALL MOUNT SENSOR INSTALLATION

1. Insert low voltage wiring harness through the mounting bracket legs. Secure bracket to the wall or ceiling. To install mounting bracket to a wall, use nut/bolt combination as shown in Figure 3 below.
2. Plug the CAT5 cable into any available *SmartPORT* on the *NX* Room Controller (See Figure 8). Verify solid snap-in connection.
3. Route the CAT5 cable from the Room Controller to the sensor's mounting bracket. NOTE: Low voltage wiring must be ***isolated from line voltage wiring. Consult National and Local Electrical Codes for conduit requirements.***
4. Plug the CAT5 cable into the RJ45 Adapter on the mounting bracket's wiring harness. Verify solid snap-in connection.
5. If the sensor is equipped with the isolated relay option, the normally open and normally closed contacts can be used to interface the sensor to an auxiliary system. For normally open contacts, utilize the Yellow/White (N.O.) and Blue/White (common) wires. For normally closed contacts, utilize the Black/White (N.C.) and Blue/White (common) wires. If the isolated relay is not going to be used, insulate all exposed leads with Listed/Certified electrical tape or twist-on connectors (wire nuts).
6. The sensor is also equipped with an ambient light level control. This will normally not be used with the NX control system. Insulate the Grey wire with Listed/Certified electrical tape or twist-on connector.
7. Snap bracket cover into place to conceal wiring and bracket (See Figure 3). Feed wiring harness through the back of the sensor body and out the exit slot (See Figure 4).
8. Push on locking adjustment screw then snap sensor onto mounting post (See Figure 5). Plug wiring harness into connector located on the left side (opposite exit slot) and place wiring under wire tabs (See Figure 6). Align sensor and tighten adjustment screw.
9. Replace sensor cover (See Figure 7). ***NOTE: LEDs should be on the right.***

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10. Confirm the correct coverage by simulating motion in the coverage area which will be typical for the application. If the desired coverage is not achieved, re-aim the sensor or relocate it to produce the desired coverage. To test the sensor, remove the front cover and press the TIMER TEST MODE BUTTON. Replace cover. The lights will now turn off 8 seconds after motion stops. To exit test mode remove cover and push and hold the button until the lights flash to return to the normal timer mode. Replace cover. ***NOTE: Sensor will automatically exit test mode after 1 hour.***

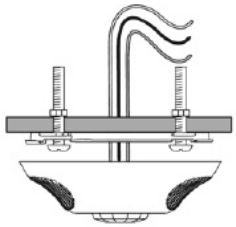
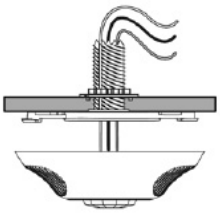


Figure 1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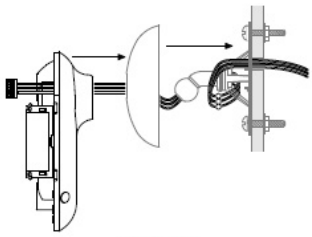
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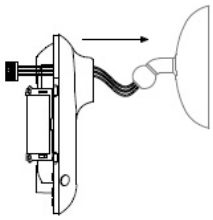
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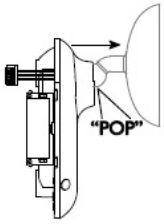

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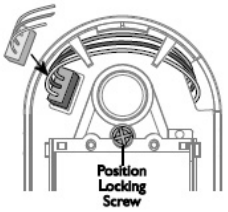

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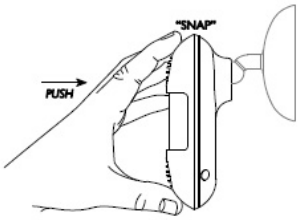

Figure 7

Figure 8

SENSOR CONTROLS & MODIFICATIONS

NX Lighting Controls sensors are designed to optimize performance by automatically adjusting the sensitivity and time delay to meet the application. The sensor controls can be modified for custom operation. The modification options are outlined below.

Bank A DIP Switches – Ceiling and Wall Mount Sensor

Switch	Description	Off (Default)	On
A1	Auto/Manual	Automatic (Normal)	Manual On (Bypass On Override)
A2	Threshold – Dual Technology Mode	High Confidence (Requires both Passive Infrared **AND Ultrasonic detection)**	High Sensitivity (Either Passive Infrared **OR Ultrasonic**
A3	LED Motion Indicator	LEDs flash when motion is detected	Disable LED Indicators
A4	Reset Learned Settings	Retain Settings (Normal)	Erase All Learned Settings. Restart Learning (Toggle On, then Toggle Off)

Bank B DIP Switches – Ceiling Sensor

Switch	Description	Off (Default)	On
B1	Strong Airflow	Normal or very low airflow present	Strong airflow present
B2	Over Doorway Installation	No (Normal – sensor mounted away from door)	Yes (Sensor mounted over doorway - Low turn-on threshold)
B3	Timer Adjust	Adjust Timer Automatically (Normal)	Adjust Timer Manually using Black Timer Knob Adjust Sensitivity Manually using Red Infrared
B4	Auto Sensitivity	Adjust Sensitivity Automatically (Normal)	Knob

Bank B DIP Switches – Wall Mount Sensor

Switch	Description	Off (Default)	On
B1	Timer Setting	See Timer Settings Table	
B2	Timer Setting		
B3	Timer Adjust	Adjust Timer Automatically (Normal)	Adjust Timer Manually using B1 and B2 Switches
B4	Auto Sensitivity	Adjust Sensitivity Automatically (Normal)	Adjust Sensitivity Manually using Red Infrared Sensitivity Knob and/or Green Ultrasonic Sensitivity Knob

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Bank B DIP Switch Timer Settings Table for Wall Mount Sensor

Timer	B1	B2
8 mins	OFF	OFF
4 mins	OFF	ON
15 mins	ON	OFF
30 mins	ON	ON

Knob Settings:

Knob Colot: Control	Function	Automatic Operation	Conditions Analyzed in Automatic Operation	Knob Setting Under Manual Operation**	Recommended Manual Setting
Green: Ultrasonic Sensitivity	Sets the ultrasonic range	Sensor analyzes room and sets sensitivity to optimal setting	Air currents False-on occurrences False-off occurrences	Linear range setting Full CCW = min (off) Full CW = max range	50% 12:00 position
Red: Infrared Sensitivity	Sets the infrared range	Same as above	Room (surface) temp. Signal-to-noise ratio	Same as above	75% 2:00 position
Black: Timer (Ceiling Sensor Only)	Sets the length of time lights will remain on after last motion is sensed	Timer setting generally increases during learning period, then decreases to minimize "ON" time	False-off occurrences Error free operation decreases the timer setting	Linear range setting Full CCW = min (8 sec) Full CW = max (30 min)	33% (10 min) 11:00 position
Blue:	Not used with NX Networked Control System	N/A	N/A	N/A	Off Full CW position

** When a function is set to "Automatic Operation", the initial setting is determined by the position of the knob, CCW is counter-clockwise, CW is clockwise

TROUBLESHOOTING

Problem	Possible Cause	Test	Result
Lights stay on	Air conditioning interference	Reduce both green and red knobs by 15%	Move sensor; temporarily reduce sensitivity
Lights stay on	Bad low voltage connection	Put sensor into test mode and check sensor status in Access Point to see if sensor changes from 'occupied' to 'unoccupied'.	Disconnect and reconnect wiring
Lights stay off	Bad low voltage connection	Put sensor into test mode and check sensor status in Access Point to see if sensor changes from 'occupied' to 'unoccupied'.	Disconnect and reconnect wiring
Lights on too long	Timer setting too high	Check switch settings	Typical setting is 8 minutes
Hallway traffic turns lights on	Sensor can "see" into hallway	Put sensor in test mode and walk hallway	Move sensor to another location

RANGE DIAGRAMS

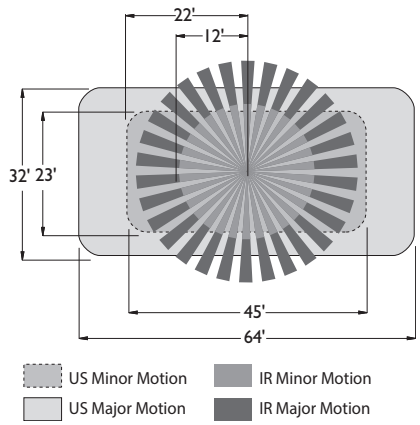

Figure 9: NXOS-OMDT2 Ceiling Mount Sensor Range Diagram

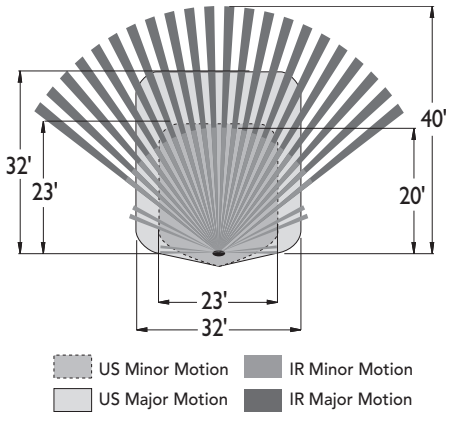

Figure 10: NXOS-LODT Ceiling Mount Sensor Range Diagram

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