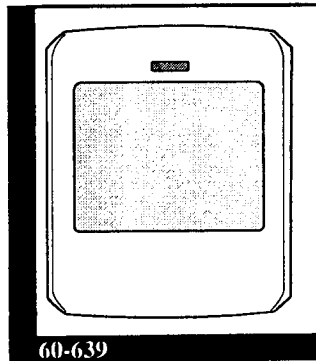


NX-480 Wireless Motion Sensor

Document Number: 466-1479 Rev. D
May 1998



Installation Instructions

Product Summary

A motion sensor (passive-infrared or PIR) detects movement within a specific area by sensing the infrared energy emitted from a body as it moves across the sensor's field of view, causing a temperature change in the sensor's zones. When this motion is detected, the sensor transmits an alarm signal to the control panel.

Use motion sensors to protect locations where door/window sensors are impractical or not needed. For example, use a motion sensor to protect large areas or open floor plans. Motion sensors also provide backup protection for door/window sensors.

The NX-480 Wireless Motion Sensor includes the following features:

- 35 feet by 40 feet coverage area for standard and animal-alley lenses
- Masking kit provided to block portions of coverage area
- 3-minute transmitter lockout time after an alarm that helps extend battery life
- Cover-activated tamper (optional wall-activated tamper is included)
- Supervisory signal transmitted every 64 minutes to the control panel
- Sensor low battery reports (trouble) to the control panel
- Field-selectable sensitivity options

Installation Guidelines

Motion sensors are ideal whenever it is not practical to install Door/Window sensors on every opening. Large areas in an open floor plan, downstairs family rooms, and hallways are candidates for motion sensors. Motion sensors are not suitable for rooms where pets can enter.

Use the following guidelines for installing motion sensors.

- If possible, locate sensors within 100 feet of the panel. While a transmitter may have a range of 500 feet or more out in the open, the environment at the installation site can have a significant effect on transmitter range. Sometimes a change in sensor location can help overcome adverse wireless conditions.
- Mount the motion sensor on an insulated, outside wall facing in.
- Mount the motion sensor on a rigid surface which is free from vibrations.
- Position the sensor so it faces a solid reference point, like a wall.
- Do not aim the sensor at windows, fireplaces, air conditioners, area heaters, forced air heating vents, or place it in direct sunlight. Sudden changes in temperature may trigger a false alarm from these devices.
- Do not mount the sensor near duct work or other large metallic surfaces which may affect the RF signals (see RF Testing). Actual acceptable transmitter range should be verified for each installation.
- Mount the sensor permanently on a flat wall or in a corner. Do not set it on a shelf.
- Windows should be closed in any area which has an armed motion sensor.
- A pet will trigger a motion sensor. See Animal Alley lens guidelines to use a motion sensor when pets are present.
- Position the sensor to protect an area where an intruder would be most likely to walk across the detection pattern (see Figure 1).

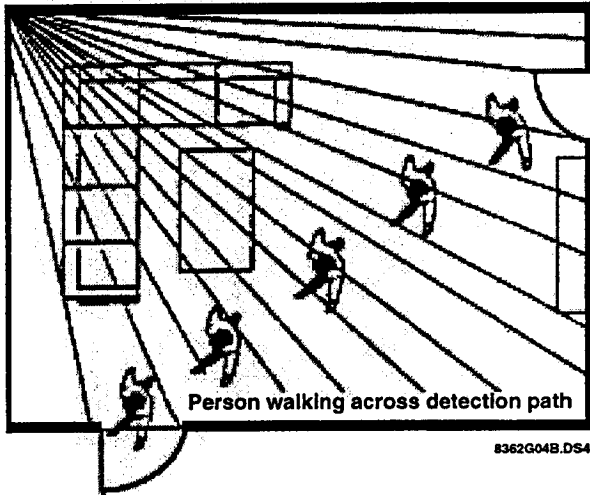


Figure 1. Overhead (Bird's Eye View) Detection Path

- For best coverage, mount the sensor from 5 to 8 feet high in the corner of the area you want to protect. See the Animal Alley lens guidelines for mounting the Animal Alley lens. Higher mounting provides better range (up to 35 feet), and lower mounting provides better protection close to the motion sensor (see Figures 2 and 3).

Animal Alley Lens Guidelines

The animal alley lens provides protection in installations where pets move about freely.

- Allowed mounting height is between 3 and 5 feet.
- Position the sensor to have a clear line of sight across the protected room.
- For best results, install the sensor higher than the highest point that the pet might reach in the detection area.
- If the detection area contains furniture or other objects upon which the pet could climb or jump, either remove these objects, mount the PIR a safe distance above these objects, or mask these areas.

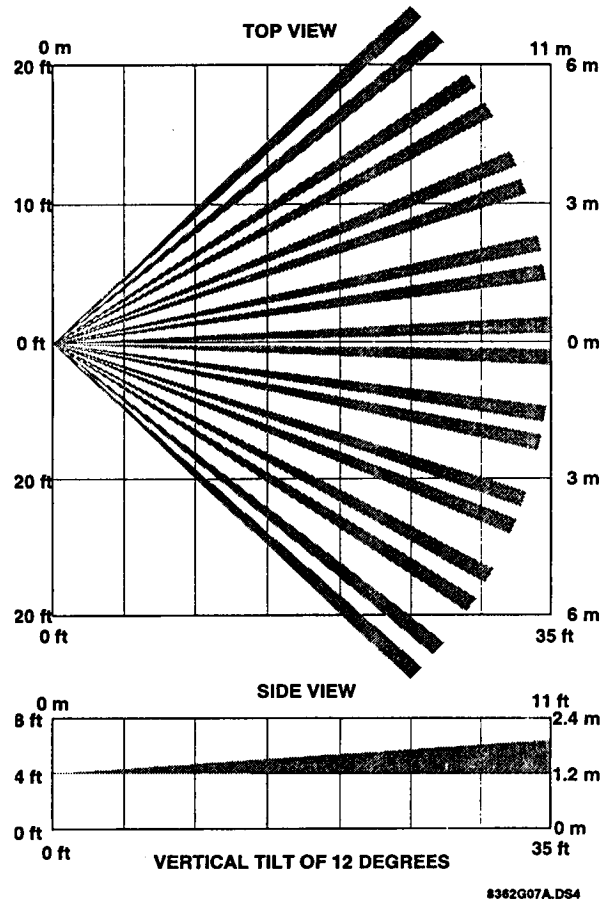


Figure 2. Top Graph Shows Both Standard & Animal Alley Lens Coverage Area. Lower Graph shows Side View Coverage Area Using the Animal Alley Lens

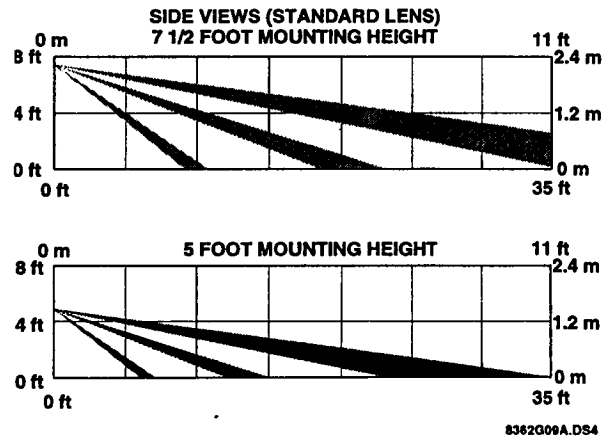


Figure 3. Side Views Show the Differences in the Coverage Area when using the standard lens mounted at Different Heights.

Mounting the Sensor

The sensor can be flush-mounted, incline-mounted, or corner-mounted depending on the application (see Figure 4).

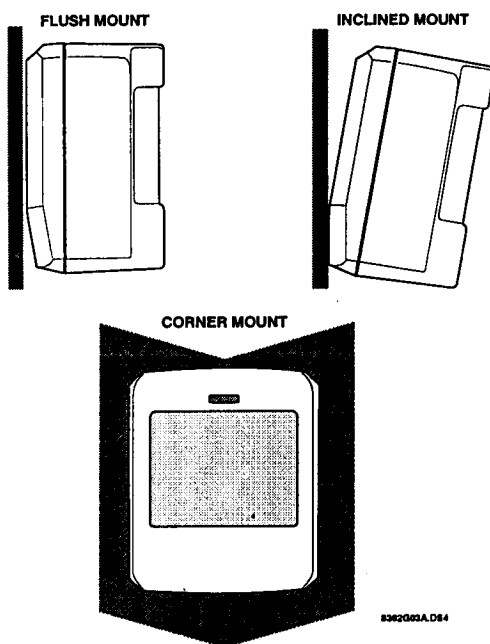


Figure 4. Wall Mount Options: use the inclined position for surface or corner mounting with the standard lens. Use the flush position for surface or corner mounting with the animal alley lens.

Use the following procedure to mount the sensor.

1. Remove the mounting plate by depressing the button on the top of the sensor body. With the opposite hand pull the mounting plate away from the body of the sensor.
2. Punch out the mounting holes that best fit your application. See Figure 4 for wall mount options. See also Figure 5 to determine which knockouts to use when mounting the motion sensor. Use the lower-side holes for corner mounting, or the lower-back holes for surface mounting with the standard lens.

For applications without pets, use the lower mounting holes. For applications with pets, use the upper mounting holes and the animal alley lens.

3. If you desire wall-tamper functionality, remove the wall-tamper knockout (see Figure 5).

Note: The wall-tamper switch cannot be used when the sensor is swivel or corner mounted.

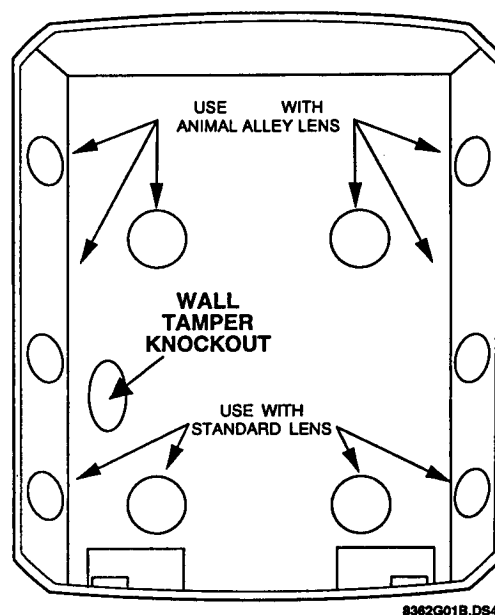


Figure 5. PIR Mounting Plate Knockouts

4. Mark the location of the required holes on the mounting surface.
5. Use wall anchors and screws to secure into place. Attach the sensor to the mounting plate.

Lens Replacement:

1. To change the lens, first remove the sensor from its mounting plate by depressing the button on the top of the sensor.
2. Remove the cover by depressing the two tabs on the top and the one tab on the bottom of the sensor body and sliding the cover off (see Figure 7).
3. Remove the installed lens by gently placing pressure on the lens from the outside of the lens.
4. Replace with the appropriate lens by aligning its notches with the appropriate tabs in the cover.
5. Install the new lens with the smooth side facing out and the grooved side facing in.
6. Replace the cover and then replace the sensor in its mounting plate.

Setting the Sensitivity

The PIR is set to standard sensitivity at the factory. This sensitivity is preferred for most applications and provides the best immunity to false alarms.

CAUTION: High sensitivity should only be used in extremely quiet environments where thermal transients are not expected.

1. Locate the sensitivity pins by first removing the mounting plate and the sensor cover as described in steps 1 and 2 of Lens Replacement process.

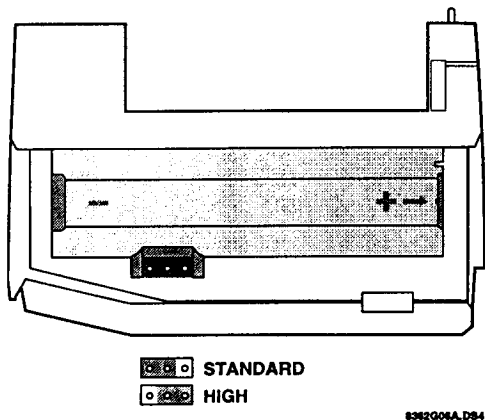


Figure 6. Sensitivity Pins Locations

2. Locate the sensitivity pins under the battery on the right side of the PIR when looking at the front of the PIR.
3. The sensor is set to standard sensitivity at the factory. To change this to high sensitivity move the shorting jumper to the pair of pins that are closer to the top of the PIR (see Figure 6)

Note: If the shorting jumper is not used or placed incorrectly, the sensor defaults to standard sensitivity.

4. Walk test the PIR to verify the sensitivity.

Walk-Testing

Walk-testing should be done to determine the sensor's actual coverage area. The edge of the coverage pattern is determined by the first flash of the LED. This may change slightly depending upon the sensitivity setting. Walk test the unit from both directions to determine the pattern boundaries.

1. Removing the sensor body from the mounted mounting plate and then remounting the body to activate the 60-second walk test mode.
2. Walk across the coverage pattern to determine the coverage area, indicated by LED activation. Each activation extends the walk test mode for an additional 60 seconds.

After the walk test mode has expired, the LED will not activate when motion is detected.

Note: Excessive use of the walk test mode may reduce battery life. Use only for initial setup and maintenance testing.

Note: When the walk test mode has ended, an alarm can be transmitted only after 3 minutes have passed since the previous alarm. This 3 minute lockout time reduces unnecessary RF transmissions in high traffic areas thereby extending battery life.

Environment Testing

Turn on all heating or air conditioning sources which would normally be active during the protection period. Stand away from the sensor and outside the coverage pattern and watch for alarms.

Coverage Masking

After walk-testing and environment testing are completed, apply masking labels to the sensor's lens to block detection of desired areas. The masking labels provided are cut to match the corresponding lens segments.

1. Determine which detection zone/lens segment needs a masking label.
2. Peel the desired mask label from its backing and apply to the inside of the lens segment to be blocked.

Programming

For complete programming instructions, refer to the *NX-Series Receiver Modules Installation Instructions*.

Maintenance

At least once a year, the range and coverage should be verified for proper operation. The end user should be instructed to put the sensor in walk test mode and walk through the far end of the coverage pattern to verify proper detection.

Replacing Batteries

When battery replacement is necessary, observe proper polarity (as shown in the battery compartment) when installing the new battery, or the sensor may be damaged. Be sure to note that as you look at the battery compartment, on the left side the positive side is down and on the right side the positive end is up. When the battery is replaced, wait at least 3 minutes after installing the battery before activating the walk test mode. See Figure 7 for battery locations.

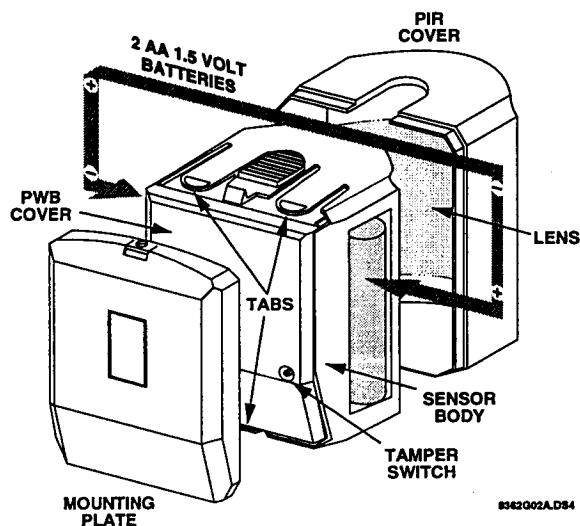


Figure 7. PIR Components, Battery Locations, & Tamper Switch

Final Testing

Final testing should be done to verify radio signal integrity and confirm control panel programming and response. The actual transmitter range can be determined by performing a sensor test as follows:

1. After the sensor has been mounted, remove it from its mounting plate to activate the walk test mode.
2. Replace the sensor in its mounting plate.
3. Place the control panel in test mode. Move across the detection pattern until the sensor's LED turns on. STOP your motion.
4. Listen for the appropriate system response. If the system does not respond, proceed to the "Troubleshooting" section.

Troubleshooting

Use the following guidelines if the system does not respond correctly when the sensor is activated.

- Check programming and re-program sensor into panel if necessary.
- Use an RF Sniffer (NX-468) test tool to verify that the sensor is transmitting. Constant beeps from the RF Sniffer indicate a runaway (faulty) sensor. Replace the sensor.
- Move the sensor to another location and test for correct response.

To relocate a sensor:

1. Test the sensor a few inches from the original position.
2. Increase the distance from the original position and retest until an acceptable location is found.
3. Mount the sensor in the new location.
4. If no location is acceptable, replace the sensor.

To replace a sensor:

1. Test a known good sensor at the same location.
2. If the system does not respond, avoid mounting a sensor at that location.
3. If the replacement sensor functions, return the problem sensor for repair or replacement.

Specifications

Frequency: 319.5 MHz. (NX-480)
433 MHz. (60-639-43-EUR)

Power source: 2 AA alkaline batteries

Typical battery life: 3 - 4 years (not verified by U.L.)

Operating temperature range: 32 ° to 120 °F

Dimensions: L = 2.875" X W = 2.375" X H = 1.875"

Notices

These devices comply with part 15 of the FCC rules. Operation is subject to the following two conditions:

1. These devices may not cause harmful interference.
2. These devices must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by Interactive Technologies, Inc. can void the users' authority to operate the equipment.



Caddx Controls, Inc. 1420 North Main Street Gladewater, Texas 75647
Toll Free: 1-800-727-2339 FAX: (903) 845-6811

Caddx is a registered trademark of Caddx Controls, Inc.