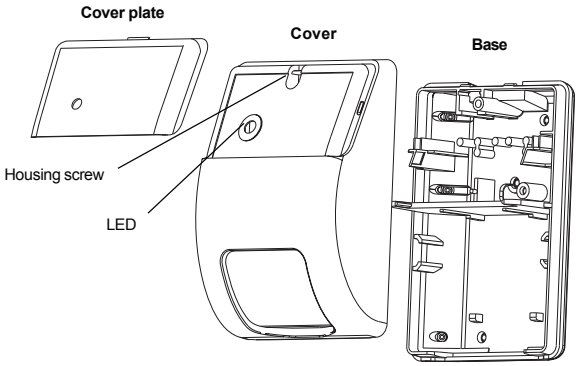
AP450 Motion Sensors Installation Instructions

Description

The AP450 sensors (models AP450 and AP450A) are passive infrared motion detectors that are highly sensitive to moving infrared sources. They feature superior immunity to RFI, vibration, static electricity, temperature changes, and other false alarm sources.

The sensors provide jumper-selectable sensitivity, range, and LED settings. The masks included allow the coverage pattern to be modified for a wide variety of applications.

Figure 1: Exploded view



Parts

The following parts are included:

- AP450 or AP450A sensor
- Three factory-installed jumpers
- Two plastic masks
- Sheet of adhesive masking labels
- Cardboard undercrawl window mask
- One screw to secure the housing cover

Selecting a mounting location

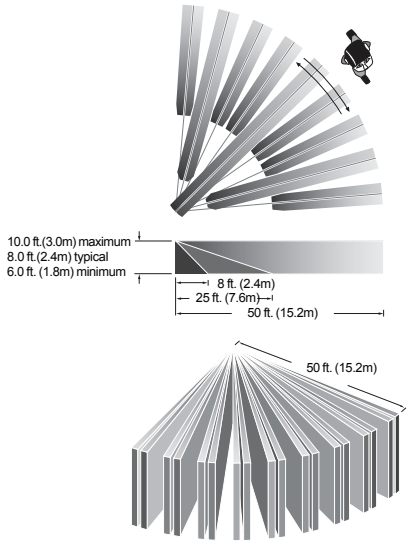
Install the unit so that the expected movement of an intruder will be across the detection pattern. See Figure 2 below.

Avoid possible false alarm sources such as:

- Direct sunlight on the sensor
- Heat sources in the field of view (heaters, radiators, etc.)
- Strong air drafts onto the sensor (fans, air conditioning etc.)
- Large animals (dogs, cats) in a field of view The unit should be mounted at a height of 6 to 10 feet (1.8 to 3.0m).

Caution: You must be free of static electricity before handling sensor circuit boards. Touch a grounded, bare metal surface before touching circuit boards or wear a grounding strap.

Figure 2: Detection pattern

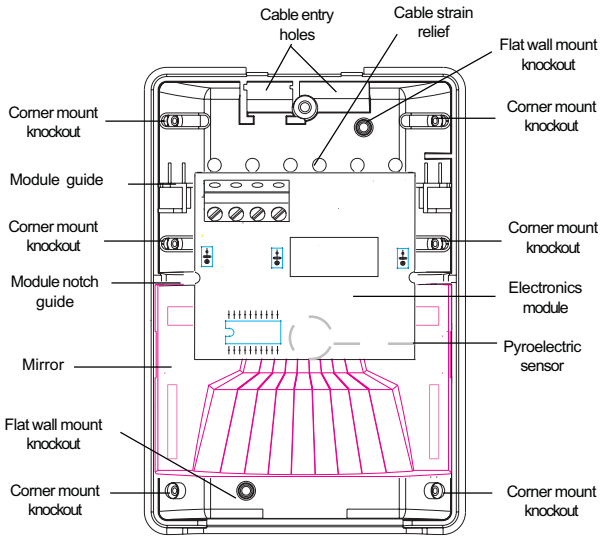


Mounting the sensor

1. To remove the cover plate, insert a flat-bladed screwdriver between the notch on the top of the cover plate and the cover. Pry up the cover plate. See Figure 1 above.
2. Remove the housing screw that holds the cover to the base, insert a flat-bladed screwdriver into the slot above the screw hole. Pry the cover off the base. See Figure 1 above.

3. Pull up on the top edge of the electronics module while rocking down on the lower edge to remove the module from the base. Be careful not to touch the pyroelectric sensor located on the bottom of the module. See Figure 3 below.
4. Select mounting holes for corner or wall mounting. Use the base as a template for marking screw hole locations on the wall. See Figure 3 below.
5. Strip the cable for 2 inches (5cm) and pull it through the cable entry hole(s) and strain relief. Make sure that the cable has slack in the wall. See Figure 3 below.
6. Use screws and wall anchors, if necessary, to attach the base to the wall.
7. Select the appropriate coverage pattern. See “Selecting the coverage pattern” below
8. Replace the electronics module by lining up the notches on the module with the module notch guides and press the top of the module down until it snaps into the module guides. See Figure 3 below.
9. Strip 1/4 inch (0.6cm) of insulation from each wire. Insert each wire into the appropriate terminal and tighten screws. See Figure 7 on page 3.
10. Set the sensitivity, range and LED jumpers for the application desired. See Figure 7 and “Setting the sensitivity, range, and LED” on page 3
11. To replace the cover, insert the closing tabs at the bottom of the cover into the guides at the bottom of the base and snap the cover down. Insert the screw. Fit the hole in the cover plate over the LED and snap the cover plate into place. See Figure 1 on page 1.

Figure 3: Base



Selecting the coverage pattern

The coverage pattern for the unit can be modified to fit specific applications by masking off mirror curtains. Curtains should be masked to avoid sources of false alarms, such as heaters, air conditioners, and windows.

If necessary, use one or more of the following methods to modify the coverage pattern:

- Use one or both of the plastic masks provided to mask off large areas of coverage as shown in Figure 4 below.
- Mask the appropriate mirror curtains with the adhesive labels provided. See the example shown in Figure 5 below. **Do not** use sharp objects to remove unwanted labels. If necessary, carefully peel the label off.
- Use the cardboard undercrawl window mask to improve false alarm immunity in the presence of objects within 5 feet (1.5m) and directly under the sensor. See Figure 6 on page 3.

Figure 4: Plastic masks

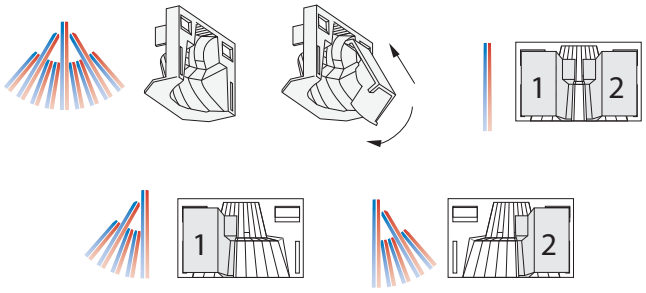


Figure 5: Adhesive labels

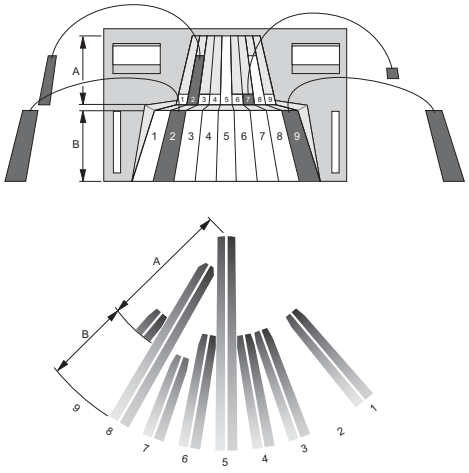
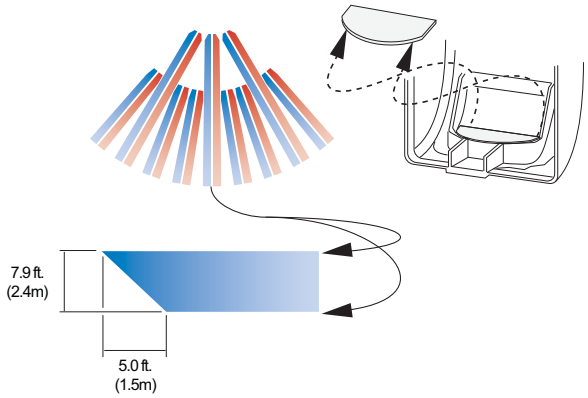


Figure 6: Cardboard undercrawl window mask



Setting the sensitivity, range, and LED

The unit provides three jumpers to set sensitivity (J1), range (J2) and LED (J3). See Figure 7 below.

Sensitivity (J1)

BI = Bi-Curtain Mode (factory default). Increases false alarm immunity in smaller areas. Requires the intruder to pass through two curtains to trigger an alarm. Do not use for single curtain applications or ranges under 5 feet (1.5m).

STD = Standard Sensitivity. Use for most wide-angle or single curtain applications. Requires the intruder to pass through only one curtain to trigger an alarm.

Range (J2)

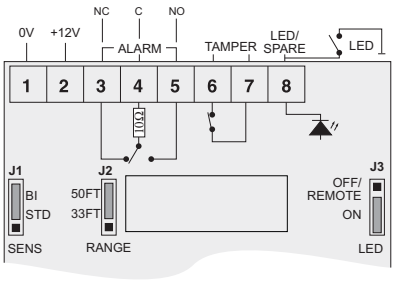
Program J2 for range under **33 feet (10.1m, factory default for AP450A)** or to **50 feet (15.2m, factory default for AP450).** It is important to program the sensor correctly for optimum sensitivity. Walk test the sensor regularly by walking across the fields of view and checking that the LED lights and that the opening relay is indicated back at the control panel.

LED (J3)

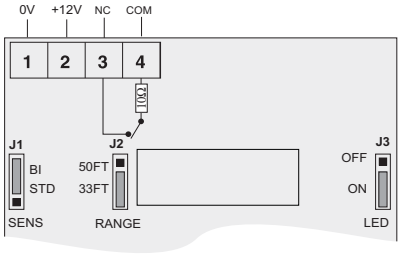
You can change the LED from **enabled (factory default)** on the AP450 sensor (does not apply to the AP450A) to remote controlled, by moving jumper J3 to the OFF/Remote position. The LED can then be enabled remotely by applying a 0V potential to terminal 8.

Figure 7: Wiring and jumpers

AP450 (Form C)



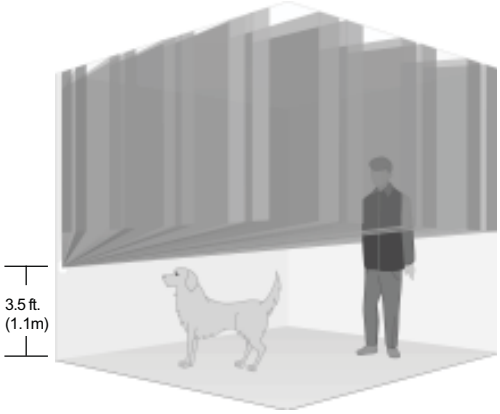
AP450A (Form A)



Pet alley application

To create a detection-free area close to the floor, mount the unit 3.5 feet (1.1m) above the floor, upside down (sensor window towards the ceiling). The cardboard undercrawl window mask should be in place to reduce exposure to the ceiling. As shown in Figure 8 below, pets are free to roam below the mounting height of the unit without causing an alarms.

Figure 8: Pet alley



Operation information

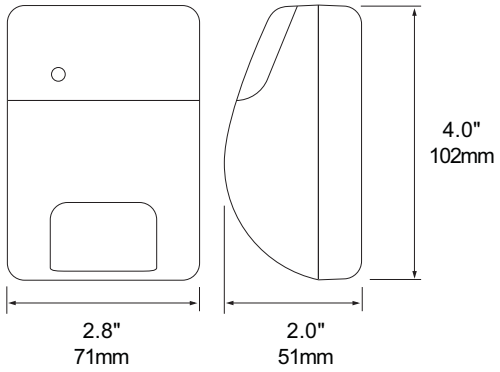
The relay contacts will open and the LED will turn on (if enabled) every time an alarm occurs. The unit should be allowed to settle for at least one minute after power-up before walk testing. When walk testing, walk across the curtains, not directly toward or away from the unit.

Maintaining the sensor

When installed and used properly, the unit provides years of service with minimum maintenance. To ensure proper operation, you should walk test the unit annually.

Clean the inside of the unit with a soft bristled brush or compressed air. Clean the outside with a damp (water) cloth as needed to keep it free of dust and dirt. **Always test the unit after cleaning.**

Figure 9: Dimensions



Specifications

Input voltage	9 to 15VDC (12V nom.)
Peak to peak ripple	2V max at 12VDC
Current consumption	15mA max.
Mounting height	6' to 10' (1.8m to 3m)
Target speed range	0.7' to 13.0' (0.2m to 4.0m)/sec.
Relay rating w/10 ohms in series	50mA at 28VDC
Alarm time	2.5 sec. min.
Tamper switch rating	100mA at 28VDC
Operating temperature	0° to 131° F (-18° to 55° C)
Relative humidity	93% max. non-condensing
Weight	4.25 ounce (120 g)
Dimensions: Width Depth Height	 2.8" (71mm) 2.0" (51mm) 4.0" (102mm)
Number of curtains	9
View angle	89°
Detection range	50' (15.2m) max.

Regulatory information

Listings	C-UL US

Ordering information

Model #	Loop type	Electrical configuration	Comments
AP450A	Closed	Normally Closed	Form A
AP450	Open or Closed	Normally Closed or Normally Open (SPDT)	Form C w/tamper

The unit shall be connected to a UL Listed power supply or control unit capable of providing a minimum of 4 hours standby power. The equipment shall be installed in accordance with NFPA 70. The unit shall be tested at least once a year.

Contact information

www.utcfireandsecurity.com or www.interlogix.com

For customer support, see www.interlogix.com/customer-support