6155AL-E
SharpShooter™ PIR
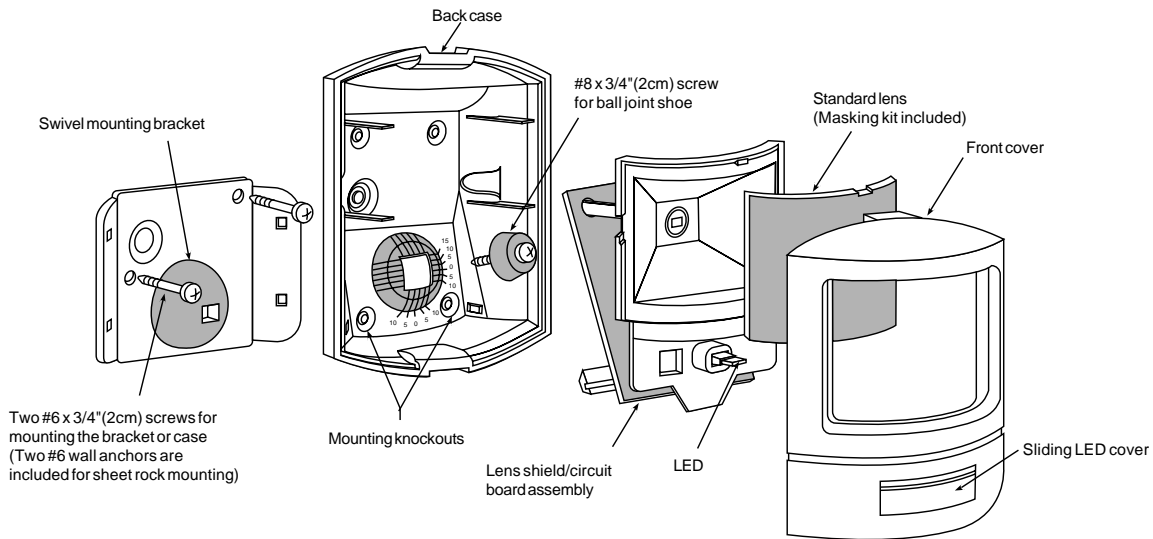# Installation Instructions

Figure 1. Exploded View

Description

The 6155AL-E passive infrared detector is an advanced PIR detector that utilizes a dual pyroelectric sensor with jumper-selectable one- or two-zone detection. It also features a sequence processor that combines bi-directional pulse counting and event verification. An opaque, off-white, visible-light filtering fresnel lens focuses the infrared energy on the pyroelectric sensor while reducing false alarms from stray light sources. The unit has a Standard Lens installed, but four optional lenses can be fitted: Long Range, Curtain, Pet Alley, and Extra Wide Angle. A masking kit for the Standard Lens is included.

Mounting Location

Locate for Cross Traffic

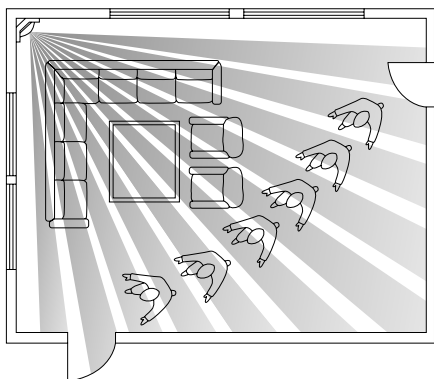For maximum detection, place the unit where intruders move **across** the beams, not toward the unit.

Figure 2. Cross Traffic

Avoid False Alarm Sources

For false-alarm-free operation, the unit should not "see" sources of heat or cold.
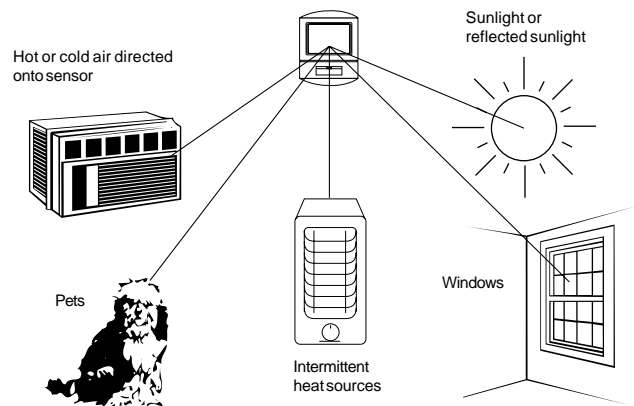

Figure 3. False Alarm Sources

Do Not Block the Coverage Pattern

The unit requires a clear line of sight. Inform end-users not to block the coverage pattern with inventory or furniture.
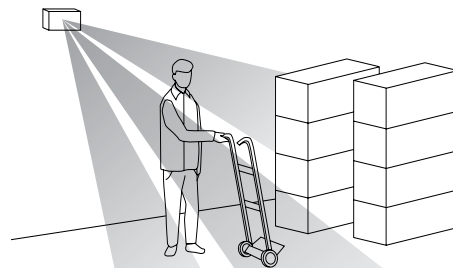

Figure 4. Blocking Coverage Pattern

Mounting With the Swivel Bracket

The swivel bracket allows aiming and adjusting the unit for maximum detection and avoidance of false alarms. You can mount the unit with or without the swivel bracket.

The swivel bracket's snap-off tabs allow angle mounting, such as for hallway protection. Break the tabs off by bending them back and forth. For optimal coverage when using the standard lens, mount 6'10" (2.1m) above floor.

Use these screws for mounting:

• Two #6 x 3/4"(2cm) screws for mounting the bracket or the back case to the wall

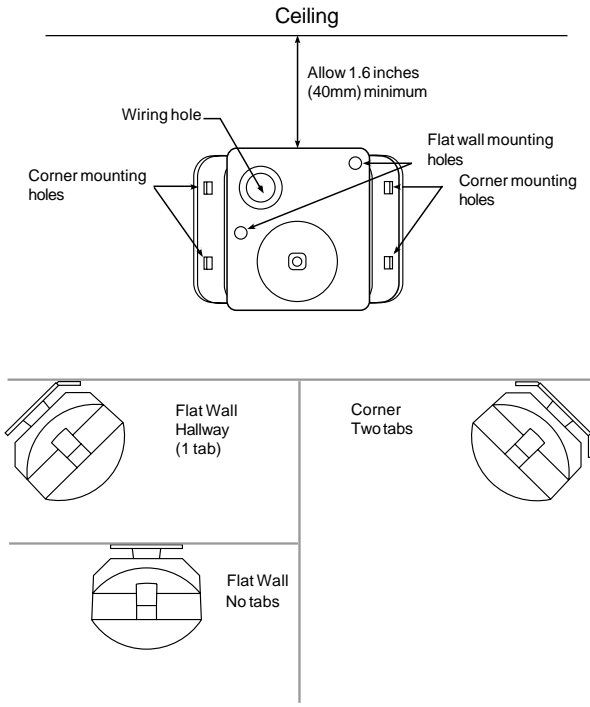• One #8 x 3/4"(2cm) screw for mounting the back case onto the bracket (insert into ball joint shoe)

Figure 5. Swivel Bracket Mounting

Align the arrows on the ball joint shoe with the zeroes on the back case for typical coverage. Turn the screw until snug.
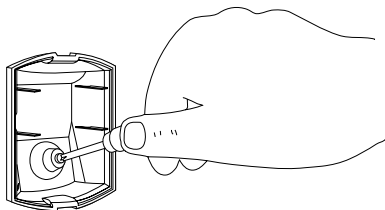

Figure 6. Swivel Bracket Screw

To **prevent false alarms**, no part of an unwanted "hotspot" should enter any part of a zone.

For **best detection**, an intruder should cross the entire zone.

Mounting Without the Swivel Bracket

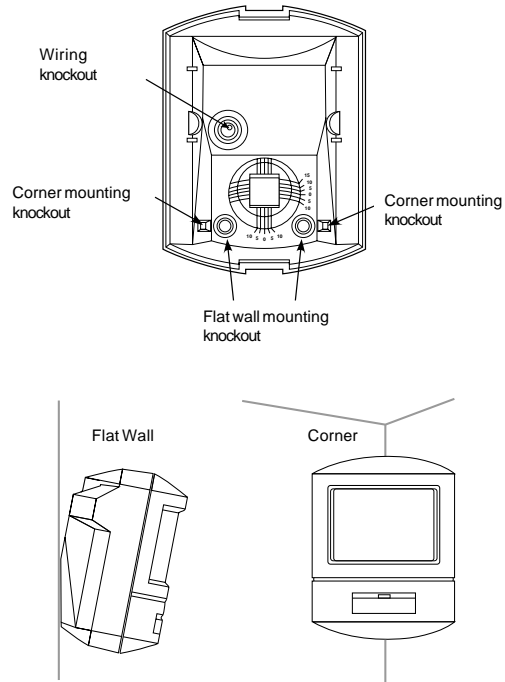For optimal coverage using the standard lens, mount 6'10" (2.1m) above the floor.

Figure 7. Mounting Options

Masking

1. Remove the two screws holding the shield to the front cover. Unsnap the shield from the front cover by grasping the edge of the circuit board and gently rotating the lens shield/circuit board assembly. Remove the lens from the shield. Make sure fingers are clean.

> **CAUTION**
> You must be free of all static electricity before handling sensor circuit boards. Touch a grounded, bare metal suface before touching circuit boards or wear a grounding strap.

2. Locate the lettered masking strip on the masking kit.

4. Peel off the masking strip and press onto the corresponding grooved segment on the lens. The notch of the lens must be up.

5. Re-install the lens in the shield. The notch on the lens matches the notch on the shield.

6. Snap the shield/circuit board assembly into the front cover. Replace the two screws that hold the shield to the front cover.
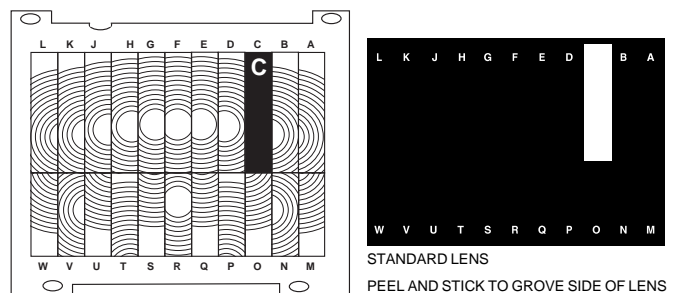

STANDARD LENS

PEEL AND STICK TO GROVE SIDE OF LENS

Figure 8. Masking

Setting Alarm Memory Configuration

Alarm Memory allows the user to determine if a unit alarmed while the system was armed. Alarm Memory also allows remote control of the LED.

> **Note** For additional information, see the 6155AL-E Technical Note.

Four operating modes are available:

Option A - Alarm Memory With One Additional Wire to the Panel

Connect the L/F pin to a panel output with a wire. Do not connect TEST to anything. The panel output should ground the L/F wire when the system is armed and open the wire when the system is disarmed. While the L/F pin is low, any alarm that occurs will set the alarm memory latch. When the L/F pin goes high when the system is disarmed, the LED on the unit will flash on and off continuously if an alarm occurred. The alarm memory latch can be reset and the LED can be turned off by switching the system from disarm to arm. In order to walktest the unit with this option, a short piece of wire should be connected between the TEST pin and ground on the unit and the system should be disarmed.

> **CAUTION** Failure to remove this wire after walktesting will keep the LED from indicating an alarm memory condition when L/F is open.
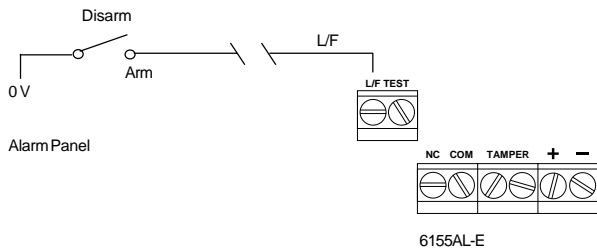

Figure 9. Option A

Option B - Remote Control of LED With One Additional Wire to the Panel

Connect the TEST pin to a panel output with a wire. The panel output should ground the wire when the system is in test mode and open the wire in normal mode. Do not connect L/F to anything. When TEST is grounded, the LED is enabled so that the LED will turn on when alarms occur. When TEST is open, the LED is disabled.
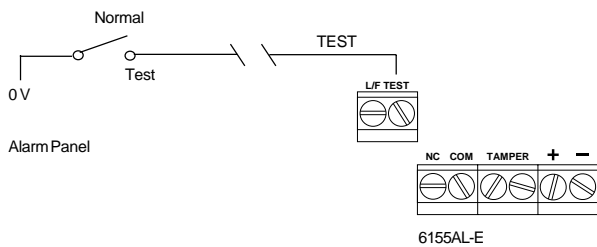

Figure 10. Option B

Option C - Alarm Memory and Remote Control of LED With Two Additional Wires to the Panel

Connect the L/F and TEST pins with wires to panel outputs that can ground and open these wires. The panel output for the L/F wire should ground the wire when the system is armed and open the wire when the system is disarmed. The panel output for the TEST wire should ground the wire when the system is in test mode and open the wire in normal mode. When an alarm occurs with L/F grounded and TEST grounded, the LED will stay on continuously when L/F and TEST are then opened. Conversely, when an alarm occurs with L/F grounded and TEST open, the LED will flash continuously when L/F is then opened.

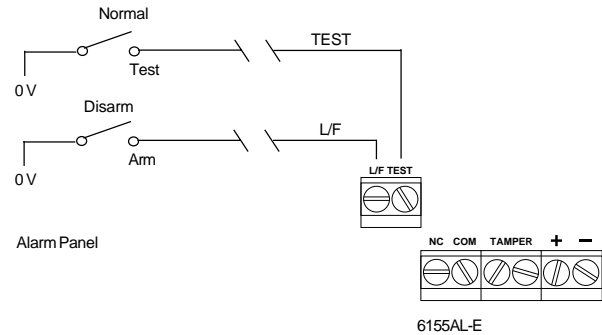The LED is disabled when L/F is grounded, which is when the system is armed.

Figure 11. Option C

Option D - Enable LED Without Alarm Memory

Connect the TEST pin to the GROUND pin on the large terminal block. Do not connect the L/F to anything.

This mode enables the LED so that alarms can be seen. This mode is used when the alarm memory mode is not used.
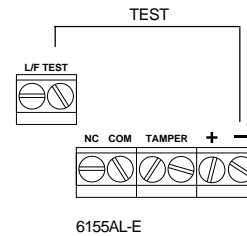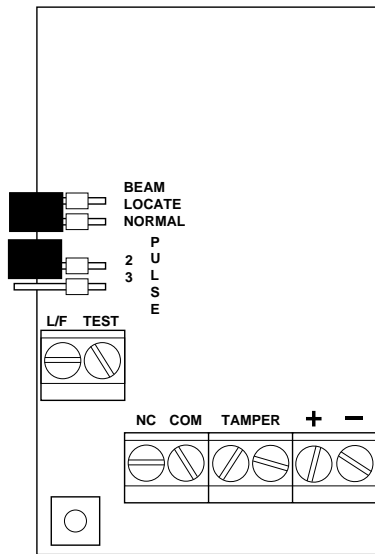

Figure 12. Option D

Figure 13. Jumpers and Wiring


Figure 14. One and Two Zones

Setting Operating Modes

Selecting Normal or Beam Locate Mode

The BEAM LOCATE jumper is used to select either Normal or Beam Locate mode. The LED turns on and the relay closes for at least 2.5 seconds whenever enough pulses occur to cause an alarm in Normal mode, depending on the position of the PULSE jumper. In Beam Locate Mode, however, the LED turns on when the target moves through each beam while the relay remains continuously open. Beam Locate mode is used to align and test the beam coverage pattern by watching the LED. The open relay prevents the alarm panel from being armed while the unit is in this mode. To resume normal operation, remember to move this jumper back to the Normal mode position. In order to see the LED turn on and off in Beam Locate mode, TEST should be held low and L/F should be open. See *Setting the Alarm Memory Configuration* for more information.
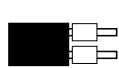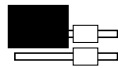

Normal Mode   **Beam Locate Mode**

Selecting Two or Three Pulse Count Mode

Each zone consists of two beams, one positive and one negative polarity. When the target moves through each beam, a pulse is generated. When the target moves through a zone, two pulses are generated with opposite polarity. The unit only accepts pulses of alternate polarity. The PULSE jumper is used to select either Two or Three Pulse Count mode. Two Pulse Count (factory default) can be used with all lenses and is the most sensitive selection. The target only has to walk through one zone to cause an alarm. Three Pulse Count mode, however, should not be used with long range and curtain lenses. This mode provides more false alarm immunity than Two Pulse Count mode but requires the target to walk through one and one-half zones to cause an alarm.
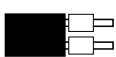
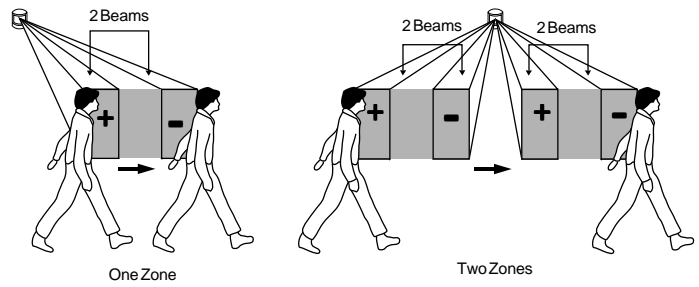**Three Pulse Count Mode**   **Two Pulse Count Mode**
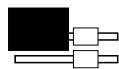
Wiring

Strip back the outer jacket on the wiring cable. This will allow wires to flex in the case. Make sure the cable is slack in the wall to avoid stressing the wires at their connections. Strip wires back about 1/4" (6mm). Push wires into terminal blocks and tighten.

Completing the Installation

1. Reassemble the unit.

2. Seal the openings with RTV compound.

3. Perform a walktest to confirm correct operation.

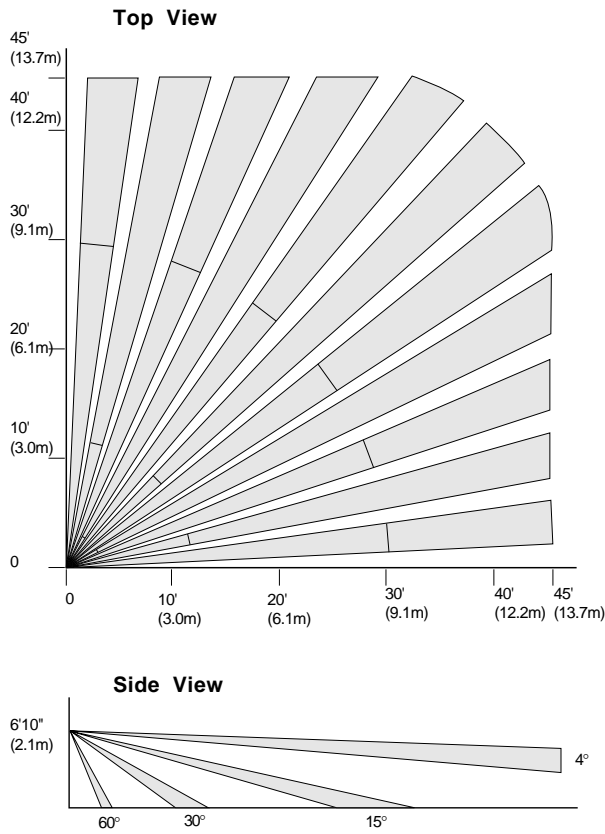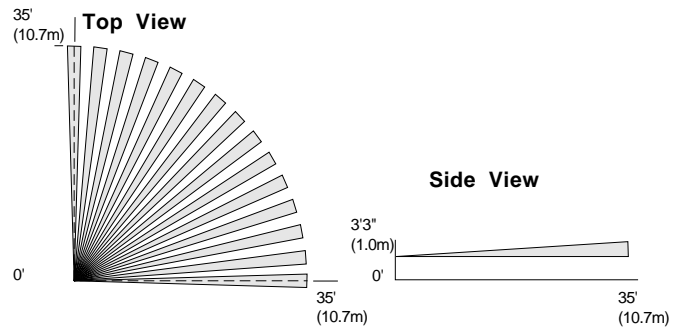4. Slide the LED cover up to hide the LED, if desired.

Zone Patterns

Top View

45'
(13.7m)

40'
(12.2m)

30'
(9.1m)

20'
(6.1m)

10'
(3.0m)

0

0   10'   20'   30'   40'   45'
(3.0m)   (6.1m)   (9.1m)   (12.2m) (13.7m)

Side View

6'10"
(2.1m)

60°   30°   15°   4°

Figure 15. Standard

Top View

35'
(10.7m)

0'

0'   35'
(10.7m)

Side View

3'3"
(1.0m)
0'

35'
(10.7m)

Figure 18. Pet Alley

Top View

0°   140°

20'
(6.1m)

Side View

6'10"
(2.1m)

0'   20'
(6.1m)

Figure 19. Extra Wide Angle

Top View   **Side View**

36°

0°   6°
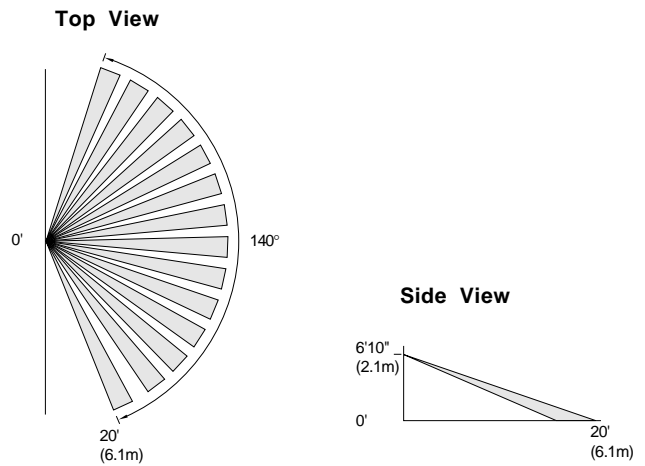
36°

6'10"
(2.1m)

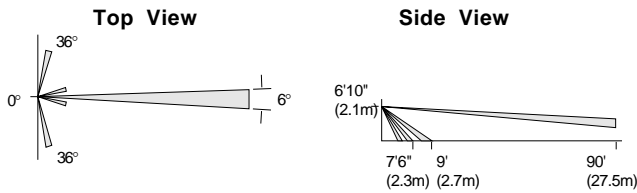7'6"   9'   90'
(2.3m) (2.7m)   (27.5m)

Figure 16. Long Range

Note

When mounting the unit at 6'10"(2.1m) (for typical coverage), align arrows on the ball joint shoe with zeroes on the ball joint. This is the 0° setting. For every 1' (0.3m) above the typical mounting height, tilt the shoe down 1°.   For example, for 7'10" (2.4m), tilt down 1°; for 8'10" (2.7m), tilt down 2°; etc.
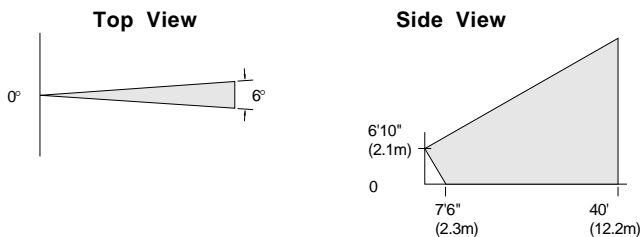
Top View   **Side View**

0°   6°

6'10"
(2.1m)
0

7'6"   40'
(2.3m)   (12.2m)

Figure 17. Curtain

Specifications

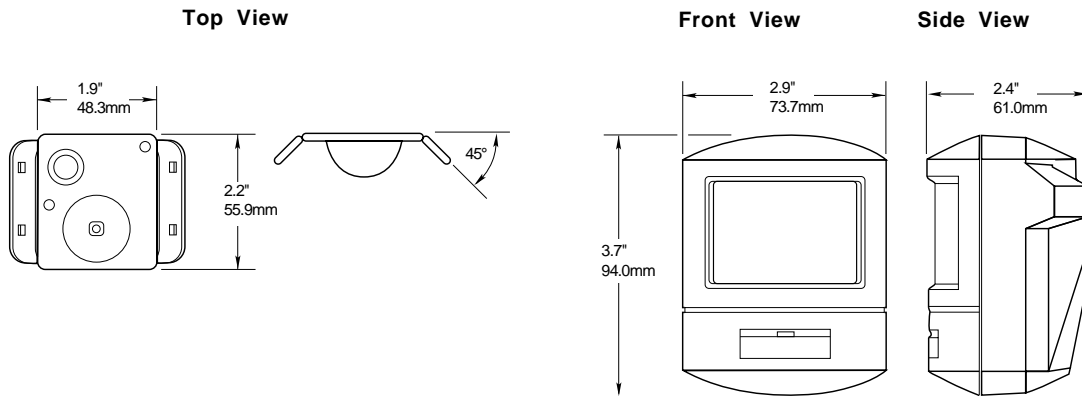|	
Housing material	Flame retardant ABS
Voltage	7 to 16 VDC
Current	11mA typical, 20 mA max
Maximum loop rating	16 VDC, 50 mA
Alarm output	Form A, Closed loop (NC)
Alarm duration	2 to 5 seconds
Cover tamper contacts	Closed loop, rating: 50 mA
Operating temperature	0° to 120°F (-17° to 50°C)
Humidity	10 to 90% non-condensing
RFI immunity	Greater than 10V/m from 0 to 1000MHz
Static/lighting immunity	2.5 KV, 2 joules max energy impulse, 1 msec rise / 50 msec decay
Pulse count	Bi-directional, 2 or 3 pulses
Standard swivel bracket	±10° left/right, 10° up, 15° down
LED indicator	Walktest
Dimensions	Width 2.9" (73.7mm) Height 3.7" (94.0mm) Depth 2.4" (61.0mm)
Color	Off-White
Lens	Standard (installed) Long Range (optional) Curtain (optional) Pet Alley (optional) Extra Wide Angle (optional)

Top View   **Front View**   **Side View**

Figure 20. Dimensions