

Installation Instructions for the DS935Z ASIC-Based PIR Intrusion Detector

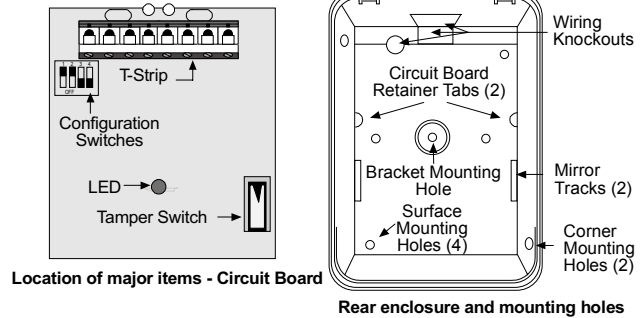
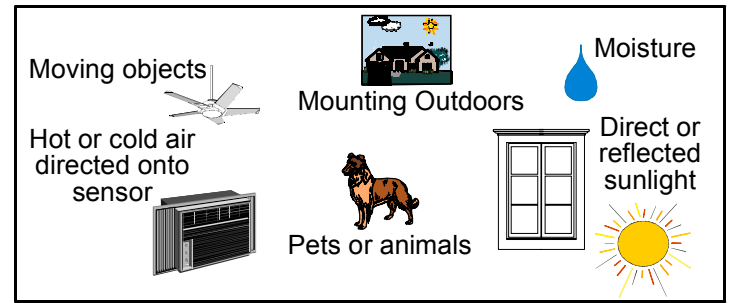
1.0 Specifications

- **Input Power:** 9.0 VDC to 15.0 VDC
 - **Current Draw:** 15 mA @ 12.0 VDC
 - **Standby Power:** There is no internal standby battery. Connect to DC power sources capable of supplying standby power if primary power fails. For each hour of standby time needed, 15 mAh are required. *For UL Listed Requirements, four hours (60 mAh) minimum are required.*

 - **Coverage:**
 - Broad (standard):** 35 ft. x 35 ft. (10.7 m x 10.7 m)
 - Barrier (optional):** 35 ft. x 10 ft. (10.7 m x 3.1 m)
 - Long Range (optional):** 70 ft. x 10 ft. (21.4 m x 3.1 m)
 - Pet (optional):** 35 ft. x 35 ft. (10.7 m x 10.7 m) with 70 ft. (21.4 m) long range
 - **Sensitivity:** Selectable for Standard or Intermediate.
 - **Alarm Relay:** Form "C" reed relay with contacts rated at 28 VDC, 125 mA maximum for DC resistive loads.
 - **Tamper Switch:** Normally Closed (with cover in place) tamper switch. Contacts rated at 28 VDC, 125 mA maximum.
 - **Trouble Output:** A solid state open collector shorts to ground (-) when the detector is in a trouble condition. The maximum current load is 25 mA. $V_{sat} @ 10 \text{ mA} = 0.5 \text{ VDC}$.
 - **Temperature:** The storage and operating range is -40°F to $+120^{\circ}\text{F}$ (-40°C to $+49^{\circ}\text{C}$). *For UL Certificated Installations, the temperature range is $+32^{\circ}\text{F}$ to $+120^{\circ}\text{F}$ (0°C to $+49^{\circ}\text{C}$).*
 - **Options:** B335 Low Profile Swivel Mount Bracket, B338 Ceiling Mount Bracket, OMB93-3* Barrier Mirror, OMLR93-3* Long Range Mirror, OMP93-3* Pet Mirror.
**Shipped in packages of three.*
- NOTE:** Misalignment of the detector when using an optional mounting bracket may reduce range and increase dead zones.
- **Patents:** This device is covered under one or more of the following U.S. patents: #4,764,755 and #5,083,106.

2.0 Mounting

Avoid



The mounting surface should be solid and vibration free.

- Select a location that is most likely to intercept an intruder moving across the coverage pattern. The recommended mounting height range is 6.5 ft. to 8.5 ft. (2 m to 2.6 m).
- Remove the cover. Insert a thin flathead screwdriver into the notch at the bottom of the cover and pry up.
- Remove the circuit board by depressing the circuit board retainer tab and lifting the board out from the enclosure. Then remove the mirror by sliding it towards the bottom and out of its tracks.
- Open the knock-out wire entrance and route the wiring through.

3.1 Surface or Corner Mounting

- Open two holes for surface or corner mounting.
- Mark the location for the mounting screws. Use the enclosure as a template. Pre-start the mounting screws.
- Securely attach the detector.
- Replace the circuit board/mirror unit.
- Select the Vertical Angle.

Mirror Information: The mirror is adjustable from $+1^{\circ}$ to -18° vertically by sliding the mirror forward or back and $\pm 10^{\circ}$ horizontally by rocking the mirror side to side. To change the mirror, just pull it out from its resting grooves.

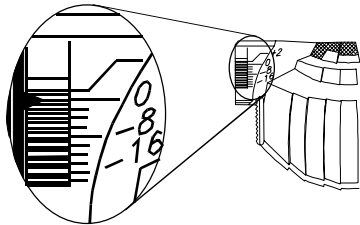
NOTE: Excessive handling of the mirror surfaces may lead to performance degradation.

- The following chart will help you set the correct Vertical Angle based on the mounting height, mirror type, and desired range.

Mounting Height	Broad		Barrier		Long Range	
	20(6)	35(10)	20(6)	35(10)	40(12)	70(20)
6.5(2)	-10°	-6°	-6°	-4°	-4°	-2°
7.5(2.3)	-12°	-8°	-8°	-6°	-4°	-2°
8.5(2.6)	-14°	-10°	-12°	-8°	-6°	-4°

Height and desired Range listed in feet (meters)

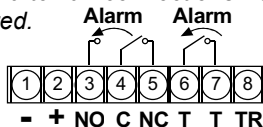
- The angle adjust markings are on the mirror. Slide the mirror forward or back until the angle hash marks are in-line with the markers on each side of the frame.



3.0 Wiring



Only apply power after all connections have been made and inspected.



- Connect wiring as shown.

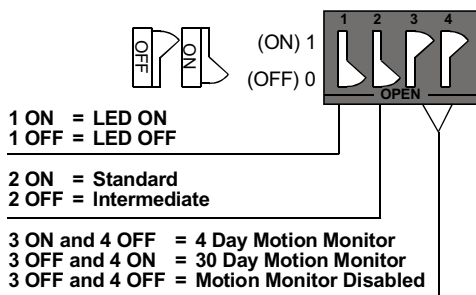
NOTE: Do not coil excess wiring inside unit.

- Seal the Wire Entrance using the foam plug provided.

Terminal Descriptions

- **1 (-) & 2 (+):** Input Power. Use no smaller than #22 AWG (0.8 mm) wire pair.
- **3, 4, 5:** Form "C" reed relay contacts rated at 3 W, 125 mA, 28 VDC maximum for DC resistive loads and protected by a 4.7 ohm resistor in the common "C" leg of the relay. Do not use with capacitive or inductive loads.
- **6 & 7:** Tamper Contact, rated 28 VDC, 125 mA.
- **8:** Trouble. Solid state open collector; maximum current load is 25 mA. Shorts to ground (-) when the detector is in a Trouble condition.

5.0 Configuring Detector



5.1 S1 - LED Operation

- **ON:** Allows the LED to operate when activated by alarm.
- **OFF:** The LED will not operate on alarm.

5.2 S2 - Sensitivity Mode

- **Standard Sensitivity:** Recommended setting for maximum false alarm immunity. Tolerates environment extremes on this setting. Not recommended for Long Range or Barrier type patterns. The detector is shipped in Standard Sensitivity mode.
- **Intermediate Sensitivity:** Recommended setting for any location where an intruder is expected to cover only a small portion of the protected area. Tolerates normal environments on this setting. This setting will improve your intruder catch performance.

5.3 S3 and S4 - Motion Monitor:

Set for the desired Motion Monitor time (see Supervision Features). The detector is shipped with the Motion Monitor feature disabled.

6.0 Setup and Walk Testing

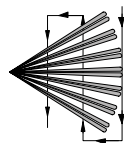


Before walk testing, the system should be fully wired, powered, and programmed.

- Turn LED Switch ON.
- Replace the front cover.

NOTE: All testing must be performed with the front cover in place.

- Wait at least two minutes (with no motion in the coverage area) for the detector to setup.
- Walk test **across** the coverage pattern.
- The edge of the coverage is determined by activation of the LED.
- Walk test the unit from both directions to determine the boundaries.



7.0 Supervision Features

A supervision trouble condition is indicated at the detector by the LED. The LED indicates the cause of the trouble using coded pulses. The trouble signal activates the Trouble output available at Terminal 8, which should be connected to a 24-hour zone.

The supervision features function as follows:

- **PIR:** PIR operation is checked electronically approximately every 12 hours. If the circuit fails, the LED will pulse four times, the Trouble output will activate and the unit must be replaced.
- **Motion Monitor Supervision:** This feature verifies that the detector has a clear view of the detection area.
 - When selected, a supervision timer is activated. A trouble condition will be indicated if the detector has not alarmed at least once during the selected time period (this feature can be disabled by placing both switches [S3 and S4] in the OFF position). The time period selected should be long enough to allow adequate time for holiday weekends.
 - If the time period selected has elapsed from the last alarm, the LED will flash two times and the Trouble output will activate.

The following chart displays the LED response to the supervision features:

LED	Cause
ON	Unit Alarm
Two Flashes	Motion Monitor Timeout
Four Flashes	PIR Self-Test Failure (replace detector)

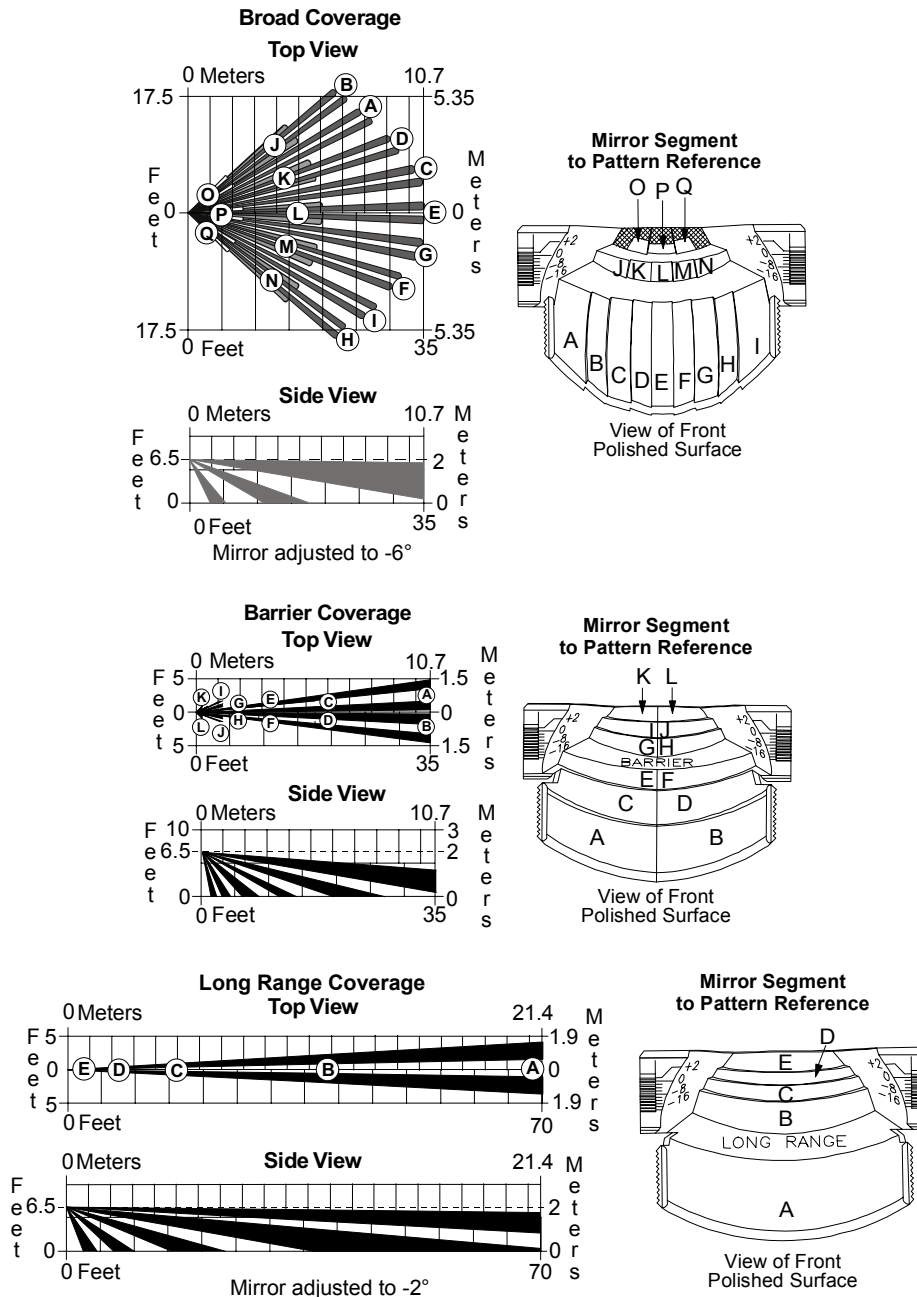
- **Trouble Reset:** An alarm activation will reset a motion monitor trouble condition.

8.0 Maintenance

At least once a year, the range and coverage should be checked in accordance with the Walk Testing section. To ensure continual daily operation, the end user should be instructed to daily walk through the outer edge of the coverage pattern and observe the LED operation (if used). This assures an alarm output prior to arming.

9.0 Coverage Patterns

- Refer to the mirror module and pattern drawings for masking information.
- Before masking, be sure the chosen mirror surface is the correct one. When removing masking, remember, many adhesives will either destroy the mirror's surface or leave residue behind to reduce coverage performance.
- This product is factory assembled with the look down zones (O, P, and Q) masked out. If you wish to use these zones, simply remove the masking tape from the lens.



10.0 Instructions for Installations Containing Pets

The Pet Avoidance Mirror is intended to provide protection in installations where pets are allowed to move about freely.

- Adjust the Vertical Angle to 0° when using the Pet Avoidance Mirror.
- Because the unit will be installed lower than normal, be sure to position the unit so that it has a clear line-of-sight across the room.
- To provide an accurate safety margin, install the unit no lower than twice the height of the pet, and never lower than 3 ft. (1 m).
- Make sure the field of view is free of all furniture or other objects which the pet could climb or jump, resulting in an unwanted alarm.

