

Installation Instructions for the DS307 ASIC Based Passive Infrared Intrusion Detector

1.0 Specifications

- **Input Power:** 6 VDC to 15 VDC; 18 mA at 12 VDC
- **Standby Power:** There is no internal standby battery. Connect to DC power sources capable of supplying standby power if the primary power fails. For each hour of standby time needed, 18 mAh are required. A minimum of 4 hours (72 mAh) is required for UL Certificated installations.
- **Coverage:**
 - Broad (standard):** 15.3 m by 15.3 m (50 ft by 50 ft)
 - Barrier (optional):** 24.4 m by 4.9 m (80 ft by 16 ft)
 - Long Range (optional):** 36.6 m by 3.1 m (120 ft by 10 ft)
- **Sensitivity:** Standard, Intermediate, or High
- **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:** Solid-state open collector shorts to ground (-) when the detector is in a trouble condition. The maximum current load is 25 mA.
- **Temperature:** Storage and operating range is -40°C to +49°C (-40°F to +120°F). For UL Certificated installations, the range is 0°C to +49°C (+32°F to +120°F).
- **Options:** B328 Gimbal Mount Bracket, B335 Swivel Mount Bracket, B338 Ceiling Mount Bracket, TC6000 Test Cord, OMB77-3* Barrier Mirror, and an OMLR77-3* Long Range Mirror.

**Shipped in packages of three.*

Note: When using an optional mounting bracket detector misalignment can reduce range.

- **Pointability:** The mirror is adjustable from +1° to -18° vertically and ±10° horizontally.
- **Reading Bosch Security Systems, Inc. Product Date Codes**
For Product Date Code information, refer to the Bosch Security Systems, Inc. Web site at: <http://www.boschsecurity.com/datecodes/>

2.0 Mounting

2.1 Mounting Considerations

- Select a location that is most likely to intercept an intruder moving across the coverage pattern. The recommended mounting height range is 2 m to 2.6 m (6.5 ft to 8.5 ft).
- Ensure the mounting surface is solid and vibration free.
- Avoid direct hot or cold drafts, direct sunlight, heat sources, windows, air conditioning outlets, and small animals.
- This detector does not detect through glass.

2.2 Surface or Corner Mounting

Note: For bracket mounting, refer to the installations supplied with the bracket.

Note: The detector can also be mounted on a single-gang box.

- Remove the cover by inserting a thin flathead screwdriver into the notch at the bottom of the cover and prying up.
- Loosen the chassis screw (see Figure 1). This holds the circuit board and mirror unit (chassis) securely in place if there is rough handling (dropping).

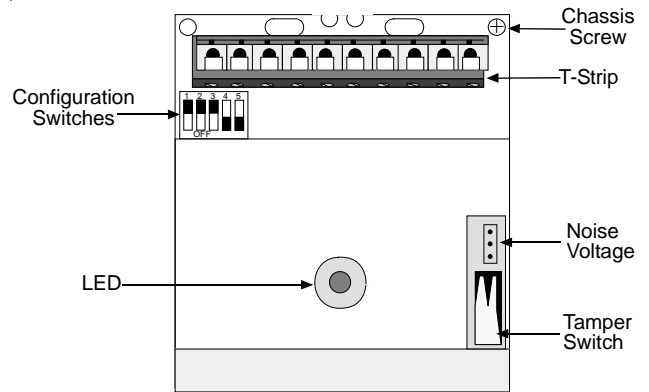


Figure 1: Circuit Board Components

- Remove the circuit board and mirror unit (chassis) from the enclosure.
- Push the board and mirror unit toward the top of the enclosure until it clears its four retainer tabs. Then lift out.
- Open two holes (Figure 2) for surface or corner mounting.

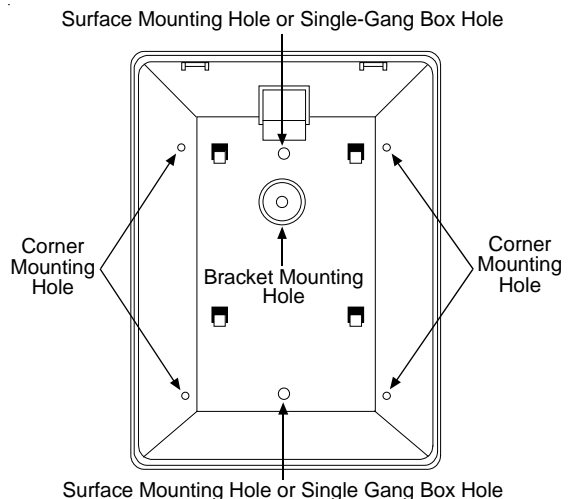


Figure 2: Detector Enclosure

- Mark the location for the mounting screws using the enclosure as a template. Start the mounting screws.
- Open the knockout wire entrance and insert the wiring (refer to *Section 3.0 Wiring*).
- Securely attach the detector.
- Replace the circuit board and mirror unit.
- Select the vertical angle.

2.3 Mirror Alignment

Note: Touching the mirror surfaces can lead to performance degradation.

For the best performance, the mirror must be adjusted vertically for the maximum desired detection range (distance) and mounting height. The angle adjust markings are located on both sides of the mirror (see *Figure 3*).

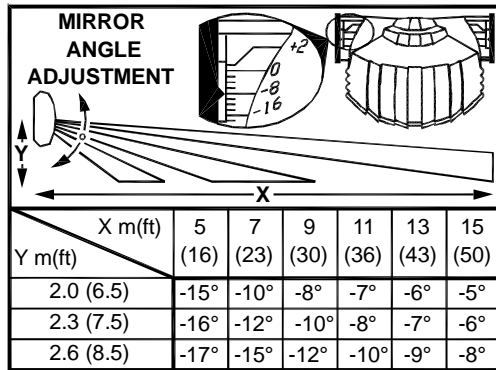


Figure 3: Mirror Alignment

- Adjust by sliding the mirror forward or backward until the angle adjustment markings are in line with the markers on each side of the frame.
- Use *Figure 3* to identify the correct vertical angle based on mounting height (Y), mirror type, and maximum range (X).
- Adjust the mirror horizontally by rotating (aiming) it from side to side.
- Walk test the unit as described in the *Section 5.0 Setup and Walk Testing*.

3.0 Wiring



Apply power only after all connections are made and inspected.

- Connect wiring as shown in *Figure 4*.

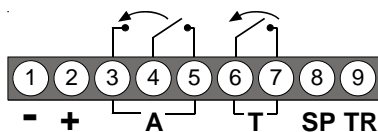


Figure 4: Terminal Connections

- Seal the wire entrance with the foam plug provided.

3.1 Terminal Descriptions

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

4.0 Configuration Switches

Configure the detector using the appropriate switch settings as shown in *Figure 5*.

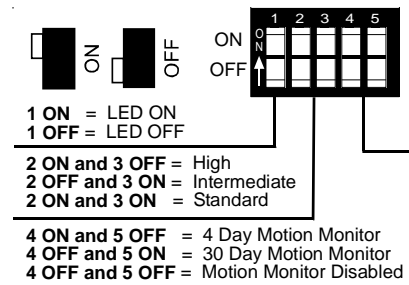
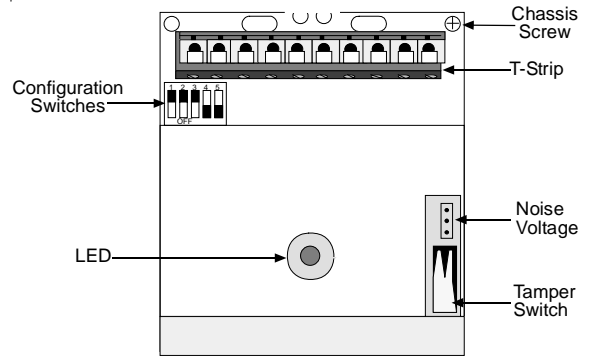


Figure 5: Configuration Switch Locations

4.1 LED Operation (S1)

- **ON:** Allows the LED to operate when activated by alarm.
- **OFF:** The LED does not operate on alarm. The LED indicates a supervision trouble condition even if this switch is off.

4.2 Sensitivity Mode (S2 and S3)

- **Standard Sensitivity:** Recommended setting for maximum false alarm immunity. Tolerates environment extremes on this setting. Not recommended for Long Range or Barrier type patterns.

Note: 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.
- **High Sensitivity:** Fast response to intruder signals. For use in quiet environments where thermal and illumination transients are not anticipated.

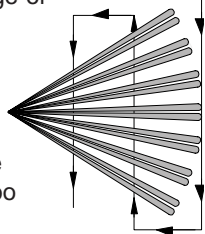
4.3 Motion Monitor (S4 and S5)

Set for the desired Motion Monitor time (refer to *Figure E* and *Section 7.0 Supervision Features*).

Note: The detector is shipped with the Motion Monitor feature disabled.

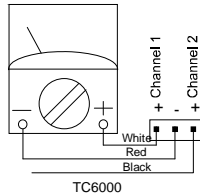
5.0 Setup and Walk Testing

- Replace the cover on the unit. Ensure the cover is in place before testing the unit.
- Apply power to the detector.
- Wait for the LED to stop pulsing, approximately 2 min if no motion is detected in the coverage pattern. Then start walk testing.
- Walk test across the coverage pattern as shown in the figure at the right. LED activation determines the edge of coverage.
- Walk test the unit from both directions to determine the boundaries.
- If you cannot achieve the desired range, try angling the mirror up or down to assure the coverage pattern is not aimed too high or too low.



6.0 Final Tests

- Connect a DC volt-ohm milliamp (VOM) meter to the Noise Voltage pins (use TC6000).
- Set meter scale for about 3 VDC.
 - The base reference level for reading background noise is approximately 2 VDC.
 - Installations in quiet environments result in a steady reading between 1.9 VDC and 2.1 VDC.
 - Voltage changes greater than 0.75 VDC from the reference level are desirable for good catch performance.
 - If changes are less than +0.75 VDC, the device might fail to respond if the temperature between the intruder and the background is minimal.
- Turn on all heating and cooling sources that are normally in operation during times of protection.
- Stand away from the unit and outside the coverage pattern. Then monitor the background noise for at least 3 min.
 - Readings should not deviate from the reference level by more than ± 0.15 VDC.
 - For readings outside these limits eliminate the cause, re-point the unit slightly, or mask the affected zones.



7.0 Supervision Features

The detector's LED uses coded pulses to indicate the cause of a Supervision Trouble condition. The trouble signal activates the Trouble output available at Terminal 9 that is connected to a 24-hour zone.

The supervision features function as:

- **PIR:** PIR operation is checked electronically approximately every 12 hrs. If the circuit fails, the LED pulses four times and the Trouble output activates.
- **Motion Monitor Supervision:** This feature confirms the detector has a clear view of the detection area.
 - When selected, a supervision timer activates. A Trouble condition is indicated if the detector has not alarmed at least once during the selected time period. (This feature can be disabled by placing both switches [S4 and S5] in the OFF position.) The time period selected should be long enough to allow adequate time for holiday weekends.
 - If the time selected elapsed from the last alarm, the LED flashes two times and the Trouble output activates.
- **Trouble Reset:** An alarm activation resets a Motion Monitor Trouble condition.

Table 6 shows the LED response to the supervision features.

LED	Cause
On	Unit alarm
Two flashes	Motion Monitor Timeout
Four flashes	PIR Self Test Failure (detector needs replacement)

Table 6: LED Response

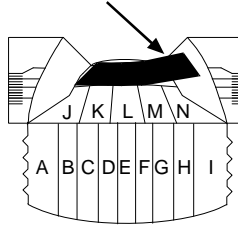
8.0 Maintenance

- At least once each year, check the range and coverage according to *Section 5.0 Setup and Walk Testing*.
- Ensure continuous daily operation by instructing the end user to daily walk through the outer edge of the coverage pattern. This assures an alarm output prior to arming.

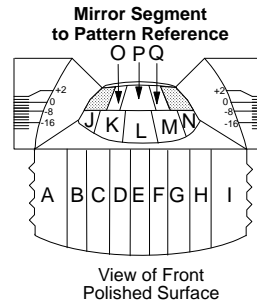
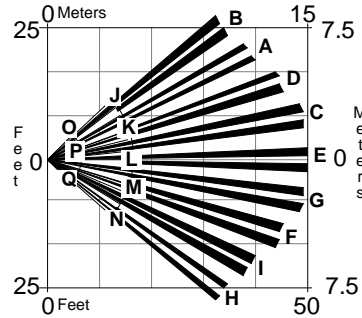
9.0 Coverage Patterns

This product is factory assembled with the look-down zones (O, P, and Q) masked. If you want to use these zones, remove the masking tape from the lens.

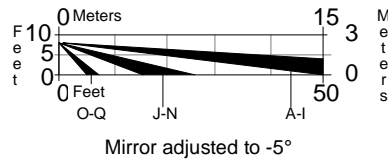
Remove the mask by peeling back the tab.



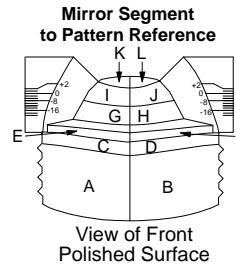
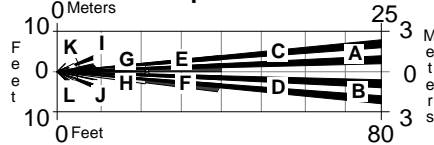
Broad Coverage Top View



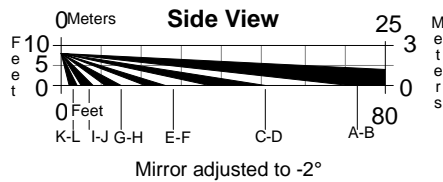
Side View



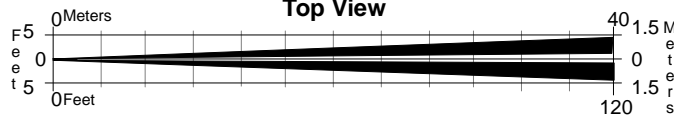
Barrier Coverage (OMB77) Top View



Side View



Long Range Coverage (OMLR77) Top View



Side View

