DS9360 TriTech Ceiling Mount PIR/ Microwave Intrusion Detector

1.0 Specifications

- **Dimensions (HxDia):** 3.5 in. x 5.25 in. (8.9 cm x 13.3 cm)
- **Coverage:** 360° by 60 ft. (18.3 m) diameter coverage when mounted on 8 to 18 ft. (2.4 to 5.5 m) high ceilings. Pattern consists of 64 zones grouped into 16 barriers, with one additional zone looking straight down from the unit (sabotage). Each barrier is 30 ft. (9.2 m) long and 4.4 ft. (1.3 m) wide at 30 ft. (9.2 m). Choice of two optical modules depending on ceiling height.
- **Input Power:** 6.0 to 15.0 VDC; 18 mA standby, 75 mA in alarm with LEDs enabled. Use only an Approved Limited Power Source.
- **Standby Power:** There is no internal standby battery. Standby power **must** be provided by an Approved Limited Power Source. Eighteen mAh required for each hour of standby time needed. *For UL Listed Requirements, 72 mAh standby current is required.*
- **Sensitivity:** Field selectable for Intermediate and High.
- **Alarm Relay:** Silent-operating Form "C" relay. Contacts rated 125 mA, 28 VDC maximum for DC resistive loads. To be connected to a SELV (Safety Extra-Low Voltage) circuit only. Do **not** use with capacitive or inductive loads.
- **Tamper:** Normally Closed (with cover in place) tamper switch. Contacts rated at 28 VDC, 125 mA maximum. To be connected to a SELV (Safety Extra-Low Voltage) circuit only. Connect tamper circuit to a 24-hour protection circuit.
- **Temperature Range:** The storage and operating range is -40°F to +120°F (-40°C to +49°C). *For UL Listed Requirements, the range is +32°F to +120°F (0°C to +49°C).*
- **US Patent Numbers:** This detector is protected by one or more of the following: #4,660,024; #4,764,755; #5,077,548; #5,208,567; 5,262,783; and #5,450,062. Other patents pending.
- **Compliance:** This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry and Science Canada. Operation is subject to the following two conditions:
  (1) this device may not cause harmful interference, and
  (2) this device must accept any interference received, including interference that may cause undesirable operation.

  Changes or modifications not expressly approved by Bosch Security Systems can void the user's authority to operate the equipment.

2.0 Installation Considerations

- **Never** install the detector in an environment that causes an alarm condition in one technology. Good installations start with the LED **OFF** when there is no target motion. It should never be left to operate with the tri-color LED in a constant or intermittent green, yellow, or red condition.
- Point the unit away from outside traffic (roads/alleys).

NOTE: Microwave energy will pass through glass and most common non-metallic construction walls.

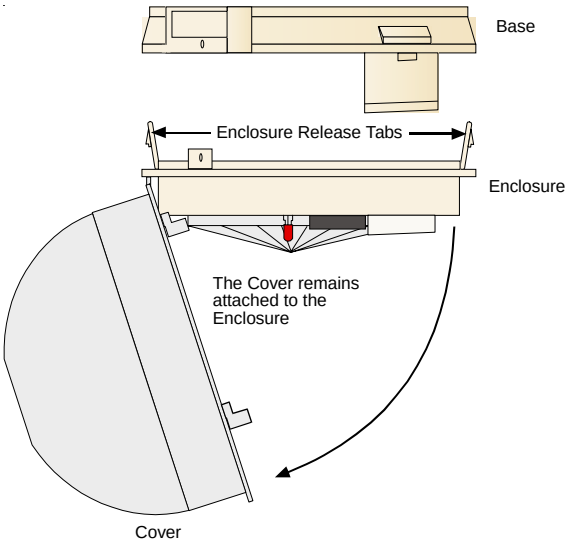
- Avoid installations where rotating machines (e.g. ceiling fans) are normally in operation within the coverage pattern. Point the unit away from glass exposed to the outdoors and objects that may change temperature rapidly.

NOTE: The PIR detector will react to objects rapidly changing temperature within its field-of-view.

- Eliminate interference from nearby outside sources.

3.0 Mounting

- Select a location likely to intercept an intruder moving **beneath** and **across** the coverage pattern. Recommended mounting height range is 8 to 18 feet (2.4 to 5.5 m).
- The surface should be solid and vibration-free. (i.e. Drop tiles should be secured if the area above the tiles is used as an air return for HVAC systems).
- Open the cover by turning counterclockwise. One side of the cover will remain attached to the base of the detector. Do not attempt to entirely remove the cover.



- Remove the base from the enclosure by pressing the two enclosure release tabs inward while lifting the enclosure away from the base.

Hint: Slightly rock the enclosure side-to-side during removal to overcome the friction caused by the base-to-enclosure terminal pins.

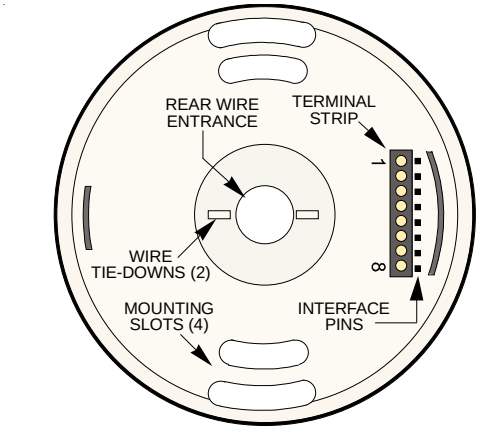
- Route wiring as necessary to the rear of the base and through the center hole.

Note: Be sure all wiring is de-energized before routing.

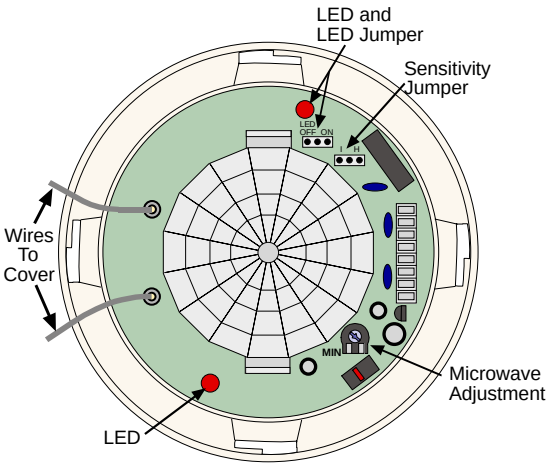
- Firmly mount the base. Depending on local regulations, the base may be directly surface mounted using anchors, mollies, or wing-nuts, or may be mounted to standard 4-inch octagonal or square electrical boxes.

Note: The DS9360 base will not completely cover a 4-inch square box. Where aesthetics are important, a 4-inch octagonal box is recommended.

Hint: Mounting to removable ceiling tiles is not recommended unless a sandwich is made of the base, ceiling tile, and a back plate behind the tile. Covers used for 4-inch octagonal and square boxes make a suitable back plate (when used with bolts and wing nuts, as an example).



Mounting Base



Top View of Enclosure

5.0 Selecting the Optical Module

- Replace the enclosure onto the base.
- For ceilings between 8 and 13 ft. (2.4 and 4.0 m) from the floor, use the optical module marked AR8-13. This marking can be found next to the two optical module tabs.

  For ceilings between 13 and 18 ft. (4.0 and 5.5 m) high, use the optical module marked AR13-18.
- To replace an optical module, push the optical module tabs towards the center until the module snaps free of the circuit board. Holding the new module by the tabs, snap the new module into place.

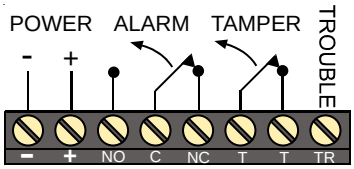
NOTE: Avoid fingerprints on the mirrored surfaces. Should the mirrored surfaces become soiled or otherwise marked, they can be cleaned using a soft, clean cloth and any commonly available, mild window cleaner.

6.0 Wiring

CAUTION

Only apply power after all connections have been made and inspected. Do not coil excess wiring inside detector.

NOTE: Input power must use only an Approved Limited Power Source. Alarm and Tamper Contacts to be connected to a SELV (Safety Extra-Low Voltage) circuit only.



- **Terminals 1 (-) & 2 (+):** Power limits are 6 to 15 VDC. Use no smaller than #22 AWG (0.8 mm) wire pair between the unit and the power source.
- **Terminals 3 (NO), 4 (C), & 5 (NC):** Alarm relay contacts rated 125 mA, 28 VDC maximum for DC resistive loads. Use terminals 4 & 5 for Normally Closed circuits. Do not use with capacitive or inductive loads.
- **Terminals 6 (T) & 7 (T):** Normally Closed tamper contacts rated at 28 VDC, 125 mA.
- **Terminal 8 (TR):** Solid state Trouble output. Shorts to ground (-) when the detector is in a Trouble condition.

7.0 LED Operation

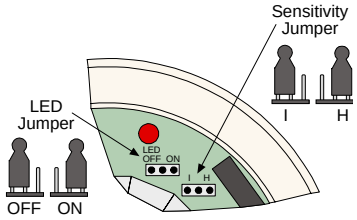
The detector uses a tri-color LED to indicate the various alarm and supervision trouble conditions that may exist. See chart below.

LED	CAUSE
Steady red	Unit alarm
Steady green + yellow + red	Microwave activation (walk test)
Steady green	PIR activation (walk test)
Flashing red	Warm-up period after power-up
Flashing red (4 pulse sequence)	Replace Unit

If the detector experiences a Microwave or PIR self-test failure, it is in need of replacement.

NOTE: During walk testing, the LED will light for the first technology (microwave or PIR) and then light red to indicate a detector alarm. The LED will not indicate activation of the second technology by lighting its color.

8.0 Feature Selection



8.1 LED On/Off Pins

The ON position allows operation of the tri-color LED. If LED indication is not desired after setup and walk tests are completed, place in the OFF position. The OFF position does not prevent the LED from indicating supervision trouble conditions.

8.2 PIR Sensitivity Selection Pins

For selection, place the plug across the pins marked I for Intermediate mode or H for High mode.

- **Intermediate Sensitivity (I)**: Tolerates environment extremes on this setting, but requires the largest amount of intruder motion to achieve an alarm.
- **High Sensitivity (H)**: The recommended setting for most installations. Use in locations where an intruder is expected to cover only a small portion of the protected area. Tolerates normal environments on this setting. **The detector is shipped in High Sensitivity mode.**

8.3 Microwave Adjustment

Note: It is important to wait 1 minute after removing/replacing the cover so the microwave portion of the detector can settle, and to wait at least 5 seconds between the following walk testing procedures.

- The tri-color LED should be OFF before walk testing.

- Walk test **across** the pattern at the intended coverage's **farthest** end. Start walking from outside the intended protection area and observe the tri-color LED. The edge of the microwave pattern is determined by the first 3 color, microwave activation of the LED (or the first red activation if the green PIR LED activates first).
- If adequate range can not be reached, increase the Microwave Range Adjust **slightly**. Continue walk testing (waiting 1 minute after removing/replacing the cover) and adjusting the range until the farthest edge of desired coverage has been accurately placed.

  Do not adjust the microwave range higher than required. Doing so will enable the detector to catch movement outside of the intended coverage pattern.
- Walk test the unit from all directions to determine all the detection pattern boundaries.

9.0 Supervision Features

The supervision features function as follows:

- **PIR/Microwave:** The complete circuit operation of these subsystems is checked approximately every 6 hours. If the PIR or microwave subsystem fails, the red LED will flash 4 times per cycle and the unit should be replaced.
- **Default:** The detector will default to PIR technology protection if the microwave subsystem fails.

10.0 Other Information

10.1 Anti-Vandal Tie Down

- After the cover has been installed and twisted into place, the entire assembly can be secured together using the supplied anti-vandal screw.

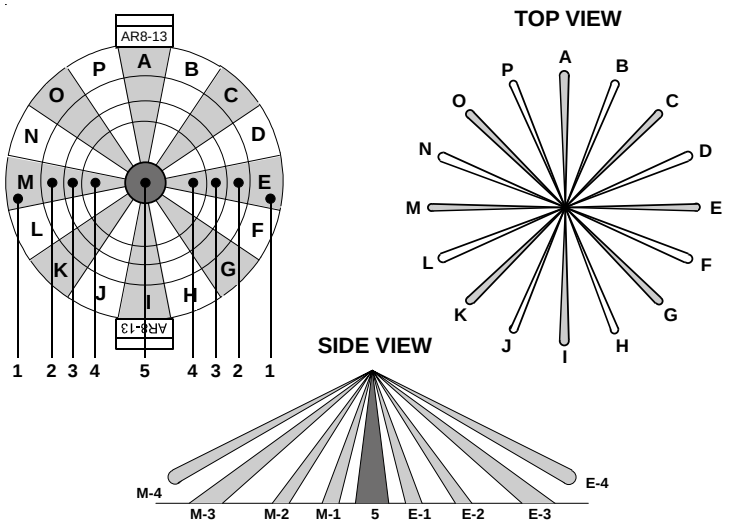
10.2 Maintenance

At least once a year, the range and coverage should be verified. To ensure continual daily operation, the end user should be instructed to walk through the far end of the coverage pattern. This ensures an alarm output prior to arming the system.

11.0 Optical Module Masking

- Peel-off masks are provided with the unit for each segment of the optical module to allow for customized coverage, or to block out areas of objects that may cause thermal disturbances. The mask is self-adhesive and pre-cut in the shape of the optical module.
- The location of the zone to be masked depends on the position of the detector. Therefore, determine the mirror surface to be masked before removing the mirror from the detector.
- To block out a particular zone or group of zones, peel off a section of the mask that corresponds to the appropriate zone, and stick it on the mirror segment. Before attempting any masking, be sure the chosen mirror surface is the correct one.

NOTE: When attempting to remove any masking, many adhesives will either destroy the mirror surface or leave enough residue behind to reduce coverage performance.



- When replacing the mirror, make sure it is facing the same direction as before it was removed.

NOTE: Avoid soiling or leaving fingerprints on the mirror surfaces. Should they become soiled or otherwise marked, they can be cleaned using a soft, clean cloth and any commonly available mild window cleaner.

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