# Installation Instructions

## D9660CMT Ceiling Mount PIR with POPIT Interface

### 1.0 Specifications

- **Input Power:** Connect to the Zonex Bus of the control panel.
- **Current Draw:** Less than 600 micro-amps. Four milli-amps when in walk test mode (LED on).
- **Standby Power:** There is no internal standby battery. Connect to DC power sources capable of supplying standby power if primary power fails. 500 micro-amp-hours required for each hour of standby time needed. *Four hours minimum is required for U. L. Listed Requirements.*
- **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.

  **Note**: *For U. L. Listed Requirements, the coverage is 360° by 54 ft. (16.5 m) when mounted from 10 to 13 ft. (3.1 to 4.0 m) using the AR8-13 Array and when mounted from 15 to 18 ft. (4.6 to 5.5 m) using the AR13-18 Array.*
- **Sensitivity:** Standard, Intermediate, or High.
- **Tamper:** A tamper condition is signaled through the Zonex Bus and displayed at the keypads when the cover is removed. **Note**: After the cover has been installed and twisted into place, the entire assembly can be secured together using the supplied anti-vandal screws (2).
- **Temperature:** The storage and operating range is -20° to +120°F (-29° to +49°C). *For U. L. Listed Requirements, the range is +32° to +120°F (0° to +49°C).*
- **Requirements:** Compatible Radionics control panel with POPEX module installed.
- **Options:** TC6000 Test Cord.
- **U. S. Patent Numbers:** #4,764,755 and #5,083,106.

### 2.0 Multiplex Programming

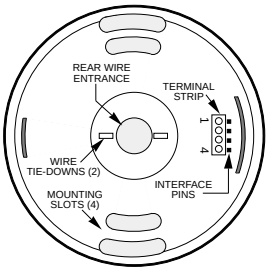
Program the address DIP switches as described for the control panel you are using.

**Note:** When installing the D9660CMT with a D7212B1, D8112, D9112B1, D9412, or D9112; place switch number "0" in the ON position.

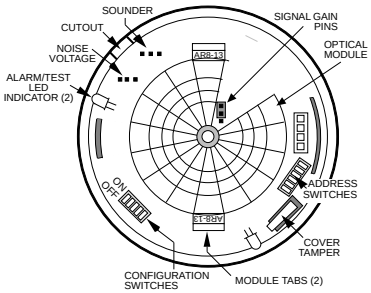
Recommended point type programming =

- D8112 = 6571
- D9112B1/D7212B1 = Point type 2, point response 2, no ring until restored.
- D9412/D9112 = Point type 2, point response E, no ring until restored.

### 3.0 Mounting



**Mounting Base**



**Top View of Enclosure with Cover Removed**

- Select a location that is most likely to intercept an intruder moving beneath and across the coverage pattern (review patterns on page 2). **The recommended mounting height is 8 to 18 ft. (2.4 to 5.5 m).**

  **Note:** 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).
- **To Avoid False Alarm Situations**: Do not mount near air handling system outlets, in areas of extreme drafts, or near other potential false alarm situations such as, windows, animals, sunlight, and heat and cooling sources.
- Remove the cover by turning counter-clockwise.
- 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 unpowered (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 and square electrical boxes.

  **Note:** The D9660CMT base will not completely cover a 4" square box. Where aesthetics are important, a 4" 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" octagonal and square boxes make a suitable back plate (when used with bolts and wing nuts, as an example).

### 4.0 Selecting the Optical Module (AR8-13 or AR13-18)

- Replace the enclosure onto the base.
- Select one of the included optical modules (AR8-13 or AR13-18).

  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.

  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.

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

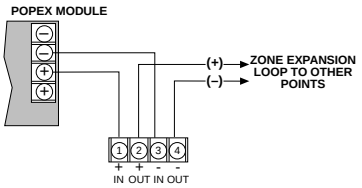
### 5.0 Wiring

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

- Connect wiring as shown.

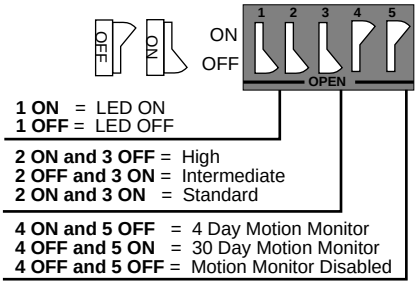
**Terminal Descriptions**

- **1 (+), 2 (+), 3 (-), & 4 (-)**: Connect to the Zonex Bus of the control panel. Use no smaller than #22 AWG (0.8 mm) wire between the detector and the control panel.



## 6.0 Configuration Switch Settings

The D9660CMT has several features that are controlled using the configuration switches.




### 6.1 LED Operation (S1)

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

**Note:** Turn the LED OFF after walk testing is completed.

### 6.2 Sensitivity Mode (S2 and S3)

Sensitivity modes depend on the type of coverage desired and the installation environment.

- Standard Sensitivity: Tolerates environment extremes on this setting, but requires the largest amount of intruder motion to achieve an alarm. **The detector is shipped in Standard Sensitivity mode.**
- Intermediate Sensitivity: 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.
- High Sensitivity: The setting for fast response to intruder signals. For use only in extremely quiet environments where ceiling drafts, and thermal and illumination transients are not anticipated.

**Note:** *Although the sensitivity modes provide different degrees of tolerance to environmentally caused alarms, the installer should assure peak background noise voltage readings do not exceed ±0.15 VDC from the reference level. (See Section 8.0 Final Tests).*

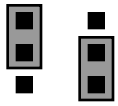
### 6.3 Motion Monitor Timer (S4 and S5)

Set switches S4 and S5 for the desired Motion Monitor time (see Section 9.0 Supervision Features). **The detector is shipped with the Motion Monitor feature disabled.**

## 7.0 Signal Gain

The D9660CMT permits selection of the signal gain. The jumper pins are located under the optical module (see graphic on page 1).

**High Gain**: Recommended for large coverage applications up to 60 feet in diameter. The unit is shipped in this setting. If the gain jumper is missing, it will default to high gain.

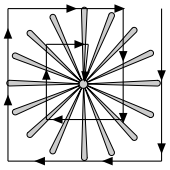


**High Setting** **Low Setting**

**Low Gain**: Recommended for applications where the area to be covered is 40 feet or less in diameter, and for applications where the High Gain setting may be too sensitive for environmental extremes.

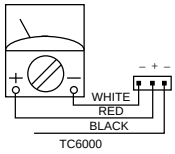
## 8.0 Setup and Walk Testing

- Apply power to the unit.
- Wait approximately 3 minutes (with no motion in the coverage area) for the detector to setup.
- Walk test **across** the coverage pattern as shown.
- The edge of the coverage is determined by activation of the LED.
- Walk test the unit from both directions to determine the boundaries.



## 9.0 Final Tests

### 9.1 Noise Measurement




- Connect a DC VOM to the Noise Voltage pins.
  - Set meter scale for about 5.0 VDC (use of the TC6000 is recommended).
- The base reference level for reading background noise is approximately 2.0 VDC.
  - Installations in quiet environments will result in a steady meter reading between 1.9 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 may fail to respond if the temperature between the intruder and the background is minimal.
- Turn on all heating and cooling sources that would normally be in operation during times of protection.
  - Stand away from the unit and outside the coverage pattern, then monitor the background noise for at least **three minutes**.
  - Readings should not deviate from the reference level more than ±0.15 VDC.
  - For readings outside these limits; eliminate the cause, re-point the unit slightly, or mask off the affected zones.

### 9.2 Audible Annunciators

- In installations where it may be difficult to observe the condition of the Alarm Verification LEDs, connection of an optional sounder (Sonalert™ or equivalent) to the PIR or Detector (3-pin) Annunciator connectors will provide an audible indication of an alarm within the appropriate pattern.

*Sonalert™ is a trademark of Mallory.*

## 10.0 Supervision Features

- **PIR:** The PIR operation is verified electronically approximately every 12 hours. If the circuit fails, the LED will pulse 4 times per cycle and the trouble output will activate through the Zonex Bus.

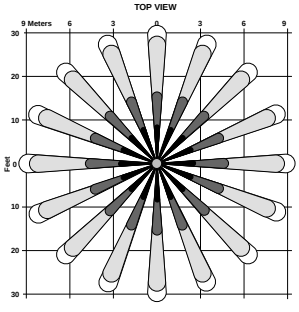
  If the PIR operation fails, the detector must be replaced.
- **Motion Monitor Supervision:** This feature verifies that the detector has a clear view of the detection area.

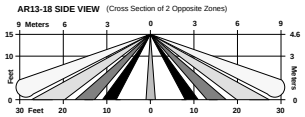
  When selected, a supervision timer is activated. A trouble condition will be indicated if the detector has not alarmed at least once during the selected time period (this feature can be disabled by placing the Motion Monitor plug in the OFF position). The time period selected should be long enough to allow adequate time for holiday weekends.

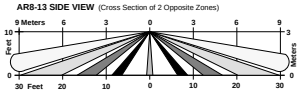
## 11.0 Other Information

- **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. This assures an alarm output prior to arming.
- **Sealing the wire entrance**: The foam plug provided is used to seal the wire entrance from drafts and insects after installation.

## 12.0 Coverage Patterns



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