



# Installation Instructions

## D9650T Passive Infrared Motion Detector with POPIT Interface

### 1.0 Specifications

- Input Power:** Connect to the Zonex Bus of the control panel.
  - Current Draw:** Less than 500 micro-amps. Two 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:**

Standard Broad	50 ft. by 50 ft.	(15 m by 15 m)
Barrier (Optional)	80 ft. by 16 ft.	(24.4 m by 4.8 m)
Long Range (Optional)	120 ft. by 10 ft.	(36.6 m by 3.1 m)
  - 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.
  - 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:** B328 Gimbal Mount Bracket, B335 Low Profile Swivel Mount Bracket, OMB77-3\* Barrier Mirror, OMLR77-3\* Long Range Mirror, and the TC6000 Test Cord.  
\* Shipped in packages of 3.
- Note:** Misalignment of the detector when using an optional mounting bracket may reduce range.
- 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.

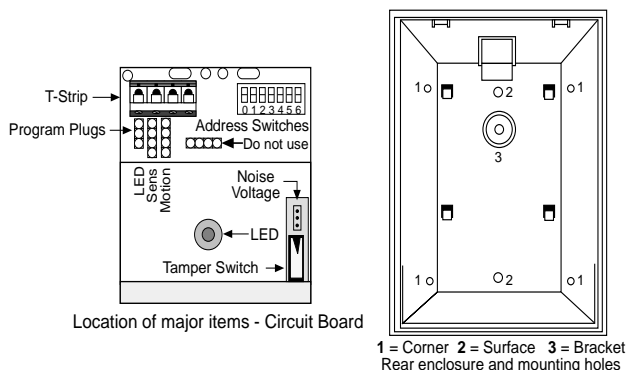
**Note:** When installing the D9650T with a D7212B1, D8112, D9112B1, D9412, or D9112; place switch number "0" in the ON position.

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

- 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).  
**Note:** The mounting surface should be solid and vibration free.

Things to Avoid/Remember	
<b>Avoid</b>	
Direct hot and/or cold drafts. Windows. Small animals. Air conditioning outlets. Heat sources. Direct sunlight.	
<b>Remember</b>	
Won't detect through glass. Best catch performance is across the pattern. When using two or more detectors, cross patterns for best coverage.	

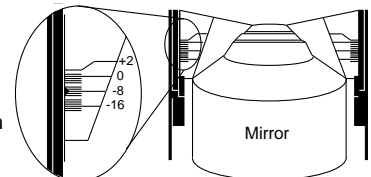
- Remove the cover. Insert a thin flathead screwdriver into the notch at the bottom of the cover and pry up.
- Remove the circuit board/mirror unit from the enclosure. Push the board/mirror unit toward the top of the enclosure until it clears its four retainer tabs, then lift it out.
- Open the knock-out wire entrance and route the wiring through.

#### Surface or Corner Mounting

- Open 2 holes for surface or corner mounting.
- Mark the location for the mounting screws. Use the enclosure as a template. Pre-start the mounting screws.
- Firmly mount the detector.
- Replace the circuit board/mirror unit.

#### Select the Vertical Angle

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.



This 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	
	30(9)	50(15)	50(15)	80(25)	80(25)	120(36)
6.5(2)	-6°	-3°	-3°	-2°	-2°	-1°
7.5(2.3)	-8°	-5°	-5°	-3°	-3°	-2°
8.5(2.6)	-9°	-6°	-6°	-4°	-4°	-2°

Height and desired Range listed in feet (meters)

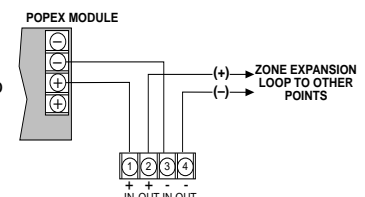
### 4.0 Wiring

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

- Connect wiring as shown.

#### Terminal Descriptions

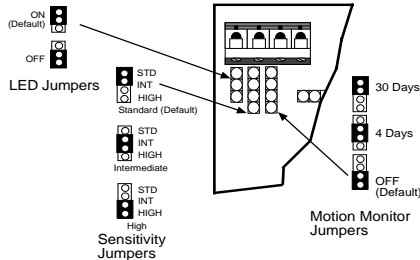
- 1 (+), 2 (+), 3 (-), & 4 (-):** Connect to the Zonex Bus of the control panel. Use no smaller than #22 AWG (0.8 mm) wire between the detector and the control panel.



## 5.0 Program Jumpers

The following functions are controlled by various settings of the program jumpers:

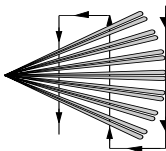
- **LED Operation:**
  - **ON:** Allows the LED to operate when activated by alarm.
  - **OFF:** The LED will not operate on alarm.



- **Sensitivity Mode:**
  - **Standard:** The recommended setting for maximum false alarm immunity. Tolerates environmental extremes on this setting. Not recommended for Long Range or Barrier type patterns. The detector is shipped in Standard Sensitivity mode.
  - **Intermediate:** The 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.
  - **High:** The setting for fast response to intruder signals. For use in quiet environments where thermal and illumination transients are not anticipated.
- **Motion Monitor:**
  - Set for the desired Motion Monitor time (see Section 8.0 Supervision Features). The detector is shipped with the Motion Monitor jumper in the OFF position.

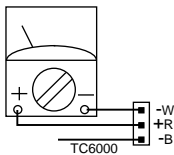
## 6.0 Setup and Walk Testing

- 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.
- 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 Final Tests

- 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  $\pm 0.15$  VDC.
  - For readings outside these limits; eliminate the cause, re-point the unit slightly, or mask off the affected zones.



## 8.0 Supervision Features

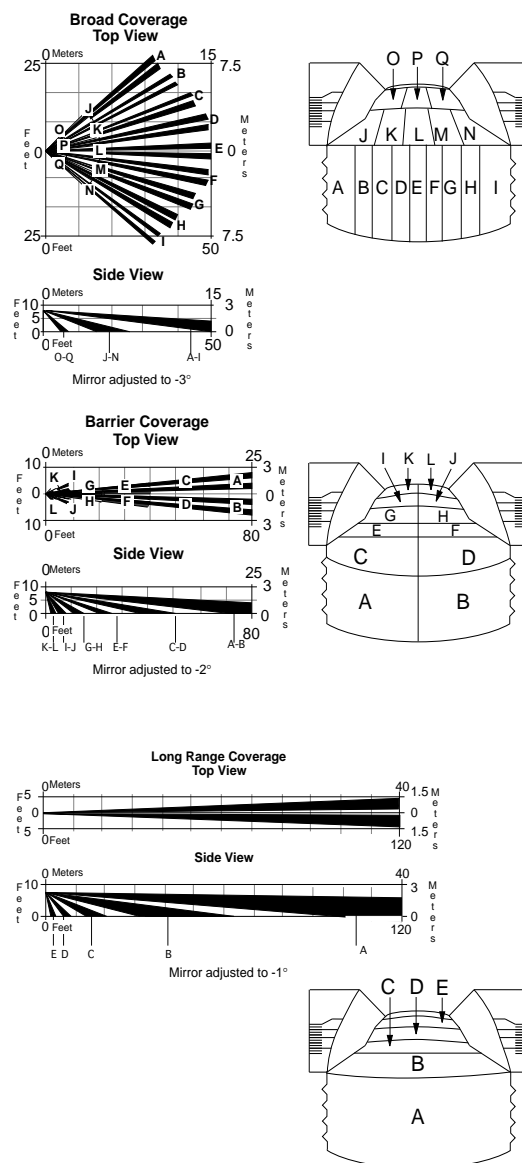
- **PIR:** The PIR operation is verified electronically approximately every 12 hours. If the circuit fails, the LED will pulse 4 times per cycle and the trouble output will activate through the Zonex Bus. If the PIR operation fails, the detector must be replaced.
- **Motion Monitor Supervision:** This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

## 9.0 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.
- **Mirrors:** The mirror is adjustable  $+2^\circ$  to  $-18^\circ$  vertically and  $+10^\circ$  to  $-10^\circ$  horizontally. To change the mirror, just pull it out from its resting grooves.
  - Note:** Excessive handling of the mirror surfaces may lead to performance degradation.

## 10.0 Coverage Patterns



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