

Radionics™

Installation Instructions D9680T Long Range PIR with POPIT Interface

1.0 Specifications

- **Coverage:**

Standard	OA80	80 ft. by 50 ft.	(24.4 m by 15.3 m)
Optional	OA120	120 ft. by 25 ft.	(36.6 m by 7.6 m)
Optional	OA200	200 ft. by 10 ft.	(61.0 m by 3.1 m)
- **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:** Standby power supplied by the Zonex Bus. 500 micro-amp-hours required for each hour of standby time needed. *Four hours minimum is required for U. L. Listed Requirements.*
- **Sensitivity:** Field selectable for 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:** OA120-2* Long Range Optical Assembly, OA200-2* Long Range Optical Assembly, and TR6000 Test Cord.
* Shipped in packages of 2.
- **U. S. Patent Numbers:** #4,764,755 and #5,083,106.

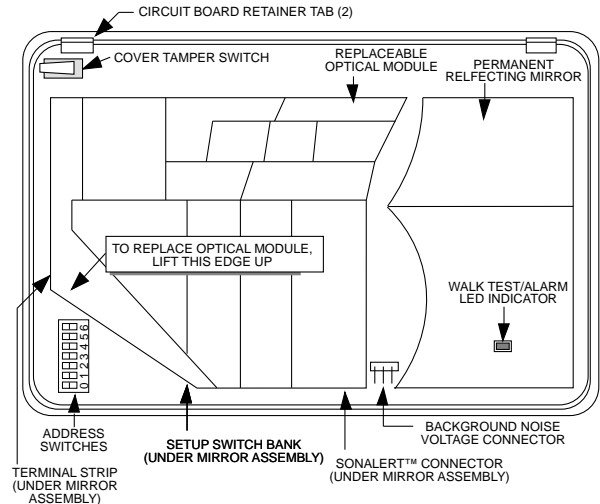
2.0 Multiplex Programming

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

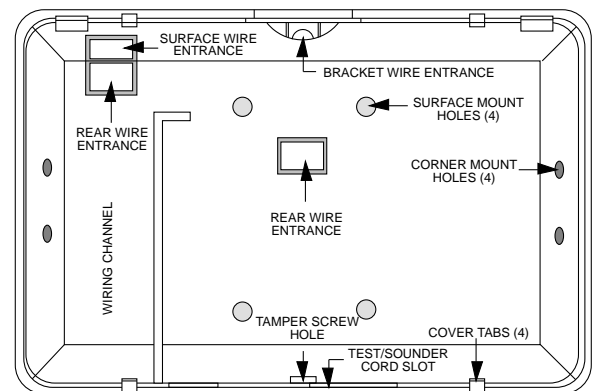
Note: When installing with a D7212B1, D8112, D9112B1, D9412, or D9112; place switch number "0" in the ON position.

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.



Front view with cover off

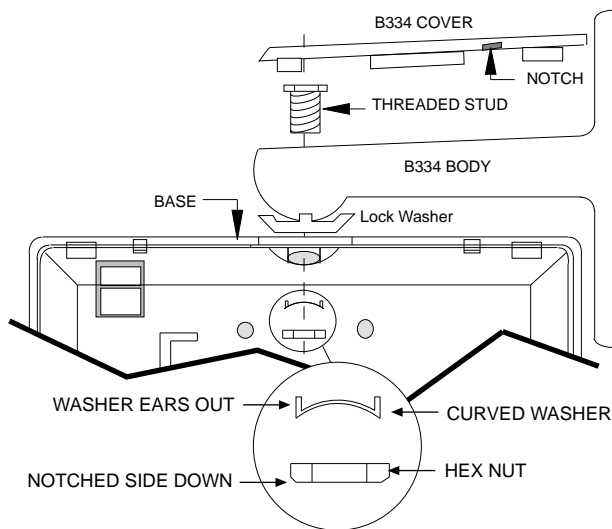


Base

3.0 Mounting

Select a location likely to intercept an intruder moving *across* the coverage pattern (review patterns on page 4). **The recommended mounting height is 7.5 ft. (2.3 m) when using the OA80 or OA120, or 10 ft. (3.1 m) when using the OA200.** Each mounting surface should be solid and vibration free.

- Remove the cover by inserting a thin screwdriver into each of the four slots at the bottom of the cover. Twist gently until the cover snaps free of the tabs on the base.



Bracket to Base Assembly

3.1 Bracket Mounting

Note: The use of the B334 Mounting Bracket (included) is strongly recommended when installing this detector.

Because variations exist in the surfaces of most mounting walls, most units are not mounted at perfect angles to the floor or walls. This may cause the pattern to point away from the "ideal" direction.

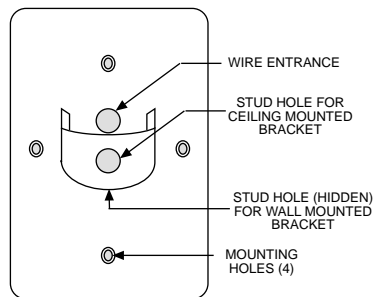
For example: A shift of only 1 degree will cause a pattern shift of 1.7 ft. (0.52 m) at 100 ft. (30.5 m). Under worst case conditions, this will cause the pattern to be aimed over the head of intruders at maximum range, or into walls of narrow corridors. What may seem to be poor range or catch performance, may be the result of improper alignment.

To insure proper catch performance, a bracket mounted detector permits the flexibility needed to properly adjust the direction of the coverage pattern.

If Mounting to the B334 Mounting Bracket:

- Remove the cover of the bracket by inserting a thin screwdriver into the notch on the side of the bracket and twisting gently.
- Insert the alarm and power wiring through the center hole from the rear of the B334 base. (Do not insert wiring if the bracket is to be surface mounted).
- Mount the B334 to a standard single-gang switch or outlet box using the supplied Bevel Head screws. (If surface mounting the unit, use the wall screw/anchor assemblies or appropriate alternatives).
- Remove the circuit board from its base. Press the two circuit board retainer tabs outward and lift the circuit board away from the base.
- Remove the sticker covering the entrance from the back of the detector base.
- Insert the threaded stud through the appropriate stud hole in the B334 bracket. Use the bottom hole for wall mounting, the front hole for ceiling mounting. *Make sure the hex head is seated in place.*
- Complete the assembly by securing the detector base to the B334 bracket using the supplied curved washer and hex nut (see Bracket to Base Assembly drawing).

- Hand tighten the hex nut.
- Thread the bracket wiring through the stud and along the wiring channel in the detector's base to the area of the circuit board's terminal strip.
- Return the circuit board to its base. Slide the back of the circuit board under the tabs at the back of the base, then snap the front into place.
- Aim the detector in the desired general direction and tighten the hex nut using the supplied hex wrench.
- Should the detector require re-alignment, loosen the hex nut, re-position the detector, and then re-tighten the nut.



B334 Bracket

3.2 Surface or Corner Mounting

- Remove the circuit board from its base. Press the two circuit board retainer tabs outward and lift the circuit board away from the base.
- Select and break away the appropriate thin-wall wire entrance covering in the detector base.
- Using the base as a template, mark the location of the mounting holes on the mounting surface. Pre-start the mounting screws.
- Route the wiring to the rear of the base and through the wire entrance. Firmly mount the base to the mounting surface.

Note: *Be sure all wiring is unpowered (de-energized) before routing.*

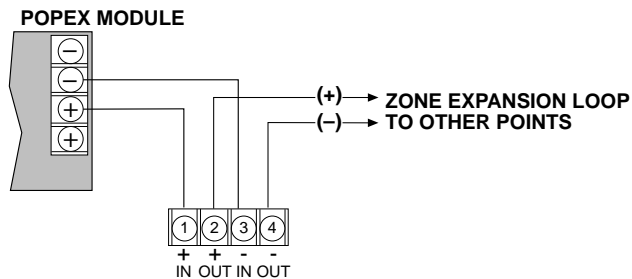
- Return the circuit board to its base. Slide the back of the circuit board under the tabs at the back of the base, then snap the front into place.

4.0 Wiring

CAUTION: ONLY APPLY POWER AFTER ALL CONNECTIONS HAVE BEEN MADE AND INSPECTED.

Note: *Do not coil excess wiring inside unit.*

- Connect wiring as shown.

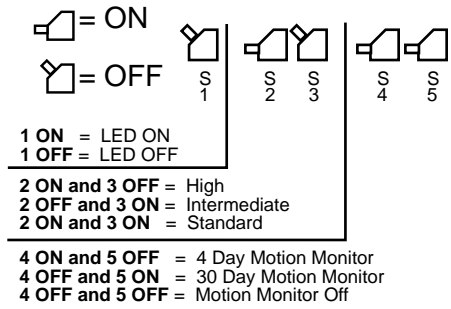


Terminal Descriptions

- **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 Configuration Switch Settings

The D9680T has several features that are controlled using the configuration switches.



5.1 LED Operation (S1)

- **ON:** Allows the Alarm/Test LED to operate when activated by motion.
- **OFF:** The LED will not operate on alarm activation, but will indicate a supervision trouble condition or a stored alarm event.

Note: Turn the LED Off after walk testing is completed.

5.2 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. *Not recommended for OA120 and OA200 patterns. The detector is shipped in Standard Sensitivity mode.*
- **Intermediate Sensitivity:** 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.
- **High Sensitivity:** The setting for fast response to intruder signals. For use in quiet environments where thermal and illumination transients are not anticipated.

If both switches are in the Off position, the unit will default to the Intermediate setting.

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. (See Section 8.0 Final Tests).*

5.3 Motion Monitor (S4 and S5)

Set switches S4 and S5 for the desired Motion Monitor time (see Section 6.0 Supervision Features). **The detector is shipped with the Motion Monitor feature Off.**

6.0 Supervision Features

The D9680T performs several supervision features that, combined with the advanced motion detection capabilities of the detector, provide an extremely high level of security. A supervision trouble condition is indicated at the detector by the Alarm/Test LED (see the Supervision Display Chart, below).

- The LED indicates the cause of the supervision trouble once per second using coded pulses.

The supervision features function as follows:

- **PIR:** The operation of the PIR is electronically checked approximately every 12 hours. If the PIR fails, the Alarm/Test LED will flash 4 times.
- **Motion Monitor Supervision:** This feature verifies that the detector has a clear view of the detection area. When selected using switches S4 and S5, 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 in the OFF position). The time period selected should be long enough to allow adequate time for holiday weekends.

Refer to Section 5.0 (Configuration Switch Settings) for proper switch settings.

If the time period selected has elapsed from the last alarm, the LED will flash 2 times and the Trouble Output will activate.

It is recommended that the 30 day timer be selected. This verifies that the unit is operational and avoids nuisance trouble conditions caused by holidays, vacations, etc.

Supervision Display Chart

LED	CAUSE
ON	Unit Alarm
Flashing 2	Motion Monitor Timeout
Flashing 4	PIR Self-test Failure

7.0 Setup and Walk Testing

If a different optical module is to be used:

- Slide the current module free from its housing. Install the new optical module onto the housing. Make sure it snaps into place.

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

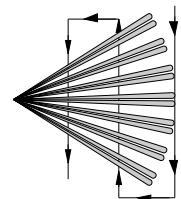
- Replace the front cover.

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

- Apply power to the unit.
- **Wait at least two minutes**, after applying power, to start walk tests.

Note: Walk testing should be done across the coverage pattern as shown.

- The edge of the coverage pattern is determined when the Alarm/Test LED indicator (and optional Sonalert™, if installed) first turns on.



Note: The use of a Sonalert™ type device (sounder) will provide an audible tone during the time the unit is in alarm. Of the three available connector pins, the center pin is positive (+) with respect to either outside pin (outside pins are common (-)).

Sonalert™ is a trademark of Mallory.

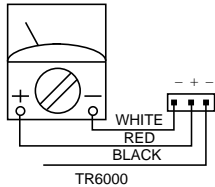
Walk test the unit from all directions to determine the boundaries.

- After completion of the walk tests, remove the Sonalert™ (if installed).

9.0 Final Tests

Note: Meter readings are very important in determining background disturbance levels and catch margin sensitivity.

- Connect a 20,000 ohm/volt (or greater) DC VOM to the Noise Voltage connector pins as shown. Set meter scale for about 3 VDC. Route meter wiring through the slot in the base. (Use of the TR6000 is recommended, but is not essential for meter use.)



- The base reference level for reading background noise or target voltages is approximately 2.0 VDC. Installations in quiet environments, therefore, 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 at this distance if the temperature difference between the intruder and the background is very small.

- 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**.

D9680T 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.

9.0 Other Information

9.1 LED Indicator Operation

- If viewing the operation of the Alarm/Test LED indicator is not desired *after* setup and walk tests are completed, place switch S1 in the Off position.

9.2 Sealing the Wire Entrance

- The foam plug that is provided with the unit is for sealing the wire entrance from drafts and insects.

9.3 Maintenance

- At least once a year, the range and coverage should be checked according to Sections 7.0 and 8.0 (Walk Testing and Final Tests).
- To ensure continued daily operation, the end user should be instructed to daily walk through the far end of the coverage pattern. This assures an alarm output prior to arming the system.

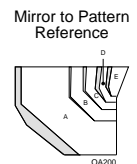
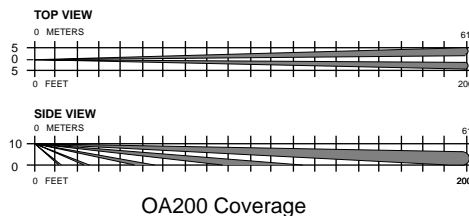
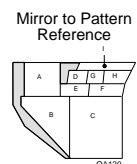
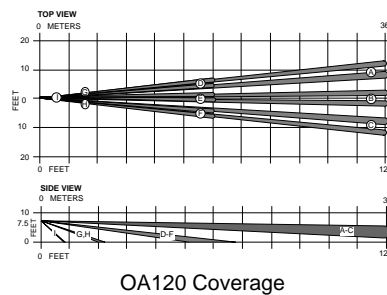
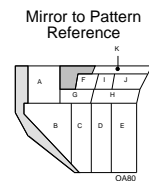
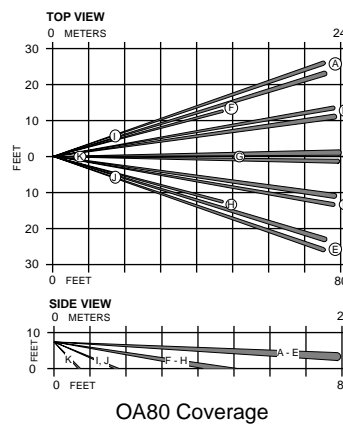
9.4 Mirror Module Information

- Excessive handling of the mirror surfaces may lead to performance degradation. Should these surfaces become soiled or otherwise dirty, clean using a soft clean cloth and any commonly available mild window cleaner.

9.5 Masking

- Refer to the mirror module and pattern drawings for masking information.
- Before attempting any masking, be sure the chosen mirror surface is the correct one. When attempting to remove any masking, many adhesives will either destroy the mirror's surface or leave enough residue behind to reduce coverage performance.
- Shaded areas of the mirror drawings do not affect the pattern and, therefore, are not maskable.

10.0 Coverage Patterns



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