

## Installation Instructions DS150i Series Request to Exit PIR Sensors

### 1.0 Description

- The DS150i is a passive-infrared detector designed for request to exit (REX) applications. It is UL Listed as an access control device under the UL 294 standard.
- The relay output consists of two Form "C" contacts that can be adjusted to latch from approximately 0.25 sec to 60 sec. The latch time features two modes of operation: resettable (R) and non-resettable (NR). The relay can also be programmed to fail safe or fail secure during a power loss.
- You can mount the DS150i on the ceiling or wall and aim and/or mask its pattern for more effective use based on installation needs. The DS150i is not designed as the primary means of exit for emergency egress applications.
- The DS150i is available in a light grey (DS150i) or a black (DS151i) enclosure. An optional trimplate is also available in light grey (TP160) and black (TP161).

### 2.0 Specifications

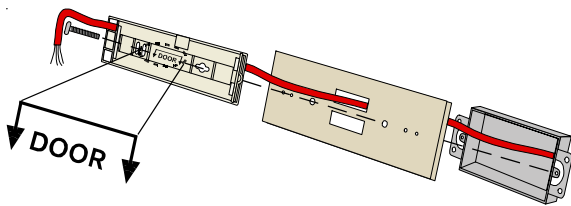
- Input Power:** 12 VDC or 24 VDC or AC; 35 mA at 12 VDC; 38 mA at 24 VDC; 38 mA avg. at 12 VAC, 45 mA avg. at 24 VAC.
- Standby Power:** There is no internal standby battery. Provide 38 mAh for each hour of standby time required.
- Relay:** Two Form "C" contact sets rated 2.0 A at 30 VDC maximum for DC resistive loads.
- Temperature:** -20°F to +120°F (-29°C to +49°C). For UL certified installations, the temperature range is +32°F to +120°F (0°C to +49°C.)
- Enclosure (HxWxD):** 1.50 in. x 6.25 in. x 1.50 in. (3.8 cm x 15.8 cm x 3.8 cm).

### 3.0 Mounting

- Select a mounting location over the center of the door or doors to be covered. **The target must walk directly toward the detector.** Mount the detector on the ceiling, wall, or door frame. The detector can be surface mounted or mounted to a keyswitch plate with a "D" size hole.



The DS150i is not tall enough to completely cover a single gang box. Where aesthetics are important, mount it using the optional trimplate (TP160 or TP161). See the diagram below for additional instructions for mounting with the trimplate.



The arrows on the base indicate its correct mounting orientation relative to the door.

- The mounting height range is from 7 ft. to 15 ft. (2.1 m to 4.6 m) above the floor.
- Remove the back cover from the detector. Insert the head of a small straight edge screwdriver into the locking tab and pry the back cover off.



When the back cover is removed, the front cover and detector module separate.

- Route the wiring as necessary through the wiring entrance (see Figure A). For surface wiring, use the break out wiring entrance on the front cover (at the same end as the wire entrance).
- Loosely mount the back cover to the mounting surface using the supplied mounting screws.
- Mount the detector module to the back cover. Aim the detector for the desired coverage.

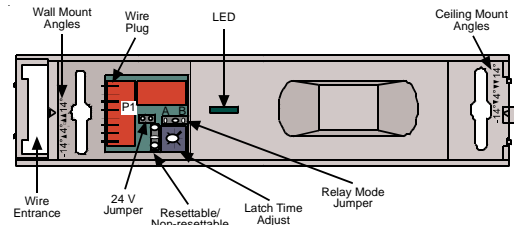


Figure A: Location of Major Items

### 4.0 Select Voltage Input

- Select 12 V or 24 V operation. When selecting 24 VDC or AC operation, remove the 24 V Jumper (See Figure A).

### 5.0 Wiring



Only apply power after all connections are made and inspected. Remove all system power (AC and standby battery) before wiring the device.

Attach the wiring connector (provided) to the wire plug on the circuit board (see Figure B).

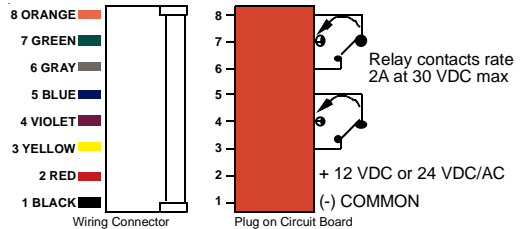


Figure B: Connector to Plug Orientation



Coil excess wiring behind the back cover along the channels provided.

Wiring for non-spike protected inductive loads: When operating an inductive load that is not spike-protected, wire as shown in Figure C.

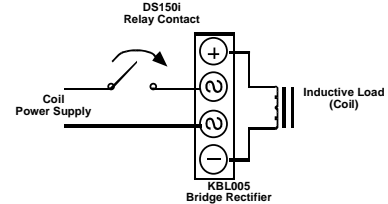


Figure C: Wiring the Bridge Rectifier

### 6.0 Latch Time

- Adjust the relay latch time by turning the Latch Time Adjust Potentiometer (see Figure A). Latch time is adjustable from 0.25 sec to 60 sec. It indicates the amount of time the relay can remain active after the detector first sees motion.

### 7.0 Resettable/Non-resettable Timer Selection

- The timer mode jumper selection determines if the relay resets at the end of latch time, or if latch time is extended by additional motion.
- Select the resettable or non-resettable timer mode with the jumper as shown in Figure D.
- Resettable:** The relay activates when the detector first sees motion. Any additional motion restarts the latch timer so the relay deactivates only when the detector no longer sees motion **and** the latch time has expired. **Hint:** This setting works best when bypassing a 24-hour contact.
- Non-resettable:** The relay activates when the detector first sees motion. It deactivates when the latch time ends, even if motion is still present. **Hint:** This setting works best when used with an access control system.

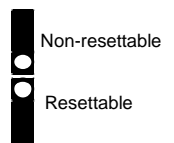


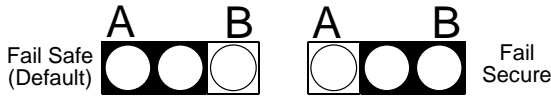
Figure D: (R), (NR) Jumper Placement



The timer defaults to the resettable mode if the jumper is not in place.

## 8.0 Relay Mode

Select the relay mode with the Relay Mode Jumper (see *Figure E*). This allows you to select a fail safe by default, or a fail secure mode.



**Figure E: Relay Mode Jumper**

*Figure F* shows the relay and LED responses to certain conditions in both A and B modes.

Condition	A		B	
	Relay	LED	Relay	LED
Activation				
No Activation				
Power Loss				

**Figure F: Relay/LED Response Chart**

## 9.0 Setup and Testing

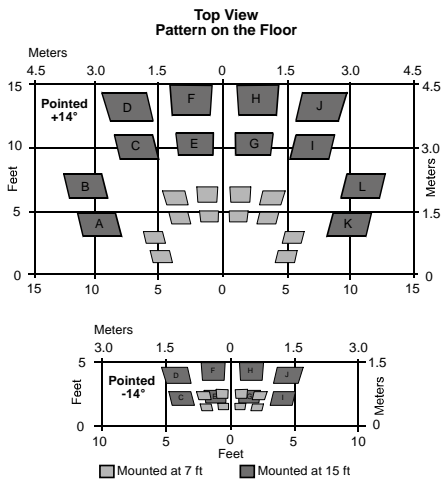
- Apply power to the unit.
- Wait at least 3 min. for the detector to settle.
- Test the unit. Walk directly through the coverage area, toward the door.
- Aim the detector up or down if necessary to obtain the proper coverage. Tighten the mounting screws after aiming the detector.
- Check that the relay latch time is sufficient. Adjust if necessary.
- After confirming proper operation, replace the cover and walk test one more time to ensure the coverage has not changed.

## 10.0 Other Information

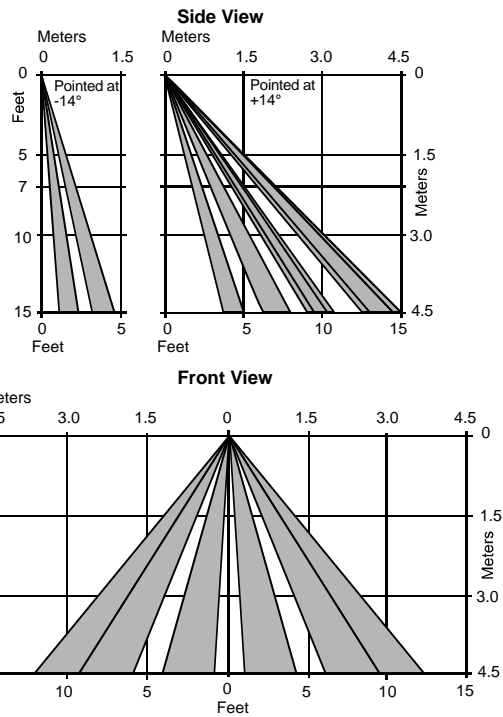
- **Single Door Use:** The pattern can be masked to remove the outer zones using the supplied masking kit. Snap the masking wedges into place on the outer surface of the lens (see *Figure G*). The masking wedges eliminate zones A, B, K, and L.
- **Testing:** Test the detector a minimum of once each year to ensure continued operation.

## 11.0 Coverage

*Figure H* and *Figure J* the standard patterns from a wall mounted unit.



**Figure H: Standard Patterns for a Wall Mounted Unit**



**Figure J: Standard Patterns for a Wall Mounted Unit**

## 12.0 Application Notes

### 12.1 General

Double entry/exit doors **without** a center post present a problem resulting from a gap that might exist between doors. While the gap is usually filled with soft or pliable weather stripping, there is an opening that vandals can use to insert an object (such as a comb or ruler) through and into the coverage pattern of the detector. If the object is a different temperature from the background, the DS150i interprets the temperature change as a request to exit. Install a DS150i over the center of double doors **with** a center post.

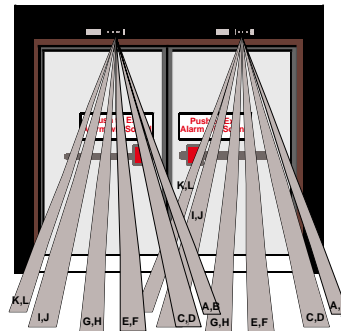
When there is no center post, consider an alternative mounting option to move the center of the pattern away from the gap.

### 12.2 Ceiling Mount

Mount the DS150i to the ceiling and away from the door. Longer objects can still be used to enter the coverage pattern. This type of entry would now be much more difficult.

### 12.3 Dual Mount

Install and center one DS150i over each of the two doors and wire the outputs so either detector permits exiting. Reduce the probability of interference from foreign objects by masking out the **inside** zones (K & L on one detector, A & B on the other detector). See *Figure K*.



**Figure K: Masking a Dual Mount**