

Installation Instructions DS150i Series Request to Exit PIR Sensors

1.0 Description

- The DS150i is a Passive Infrared Detector UL Listed as an Access Control Device under UL 294 standard. It is designed for "request to exit" applications.
- The relay output consists of two Form "C" contacts that can be adjusted to latch from approximately 0.25 to 60 seconds. 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 in the event of a power loss.
- The DS150i may be mounted on the ceiling or the wall, and its pattern may be aimed and/or masked for more effective use based on installation needs. It is not designed as a 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

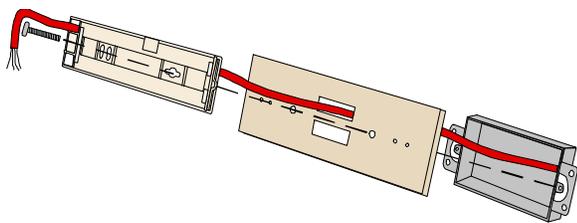
- Input Power:** 12 or 24 VDC or AC; 35 mA @ 12 VDC; 38 mA @ 24 VDC; 38 mA avg. @ 12 VAC, 45 mA avg. @ 24 VAC.
- Standby Power:** There is no internal standby battery. Provide 38 mA/h for each hour of standby time required.
- Relay:** Two Form "C" contact sets rated 2.0 amps @ 30 VDC maximum for DC resistive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

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.** The detector may be mounted on the ceiling, wall, or door frame. It may be surface mounted or mounted to a keyswitch plate with a size "D" hole.



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



- The mounting height range is from 7 to 15 ft. (2.1 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.



Once the back cover is removed, the front cover and detector module will also 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. Use the supplied mounting screws.
- Mount the detector module to the back cover. Aim the detector for the desired coverage.

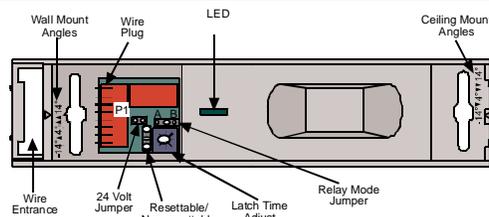


Figure A - Location of Major Items

4.0 Select Voltage Input

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

5.0 Wiring

- Connect the wiring connector (provided) to the wire plug on the circuit board as shown in Figure B.

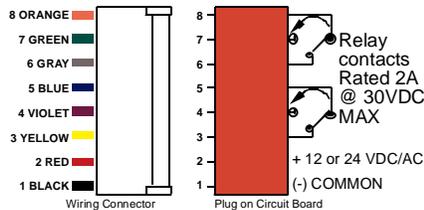


Figure B - Connector to Plug Orientation



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

Excess wiring may be coiled behind the back cover along the channels provided.

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

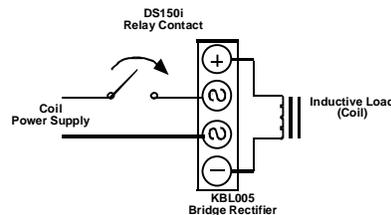


Figure C - Wiring the Bridge Rectifier

6.0 Latch Time

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

7.0 Resettable / Non-resettable Timer Selection

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



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

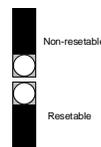


Figure D - (R), (NR) Jumper Placement



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8.0 Relay Mode

Select the relay mode with the Relay Mode Jumper (See Figure E). This lets you select a "fail safe" by default, or a "fail secure" mode.



Figure E - Relay Mode Jumper

Figure F (below) displays 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 three minutes 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 may be masked using the supplied masking kit to remove the outer zones. 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:** The detector should be tested at least once a year to ensure continued operation.

11.0 Coverage

Figures H and J depict the standard patterns from a wall mounted unit:

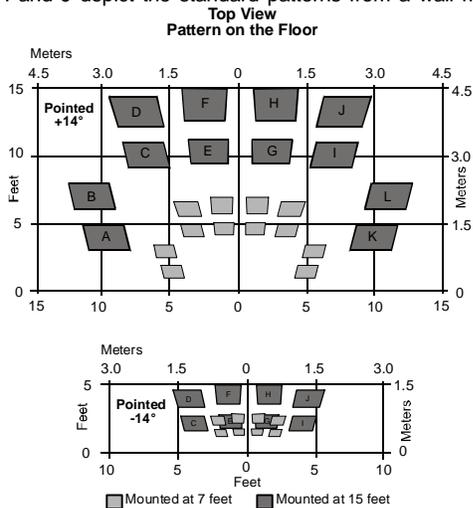


Figure H - Standard Patterns for a Wall Mounted Unit

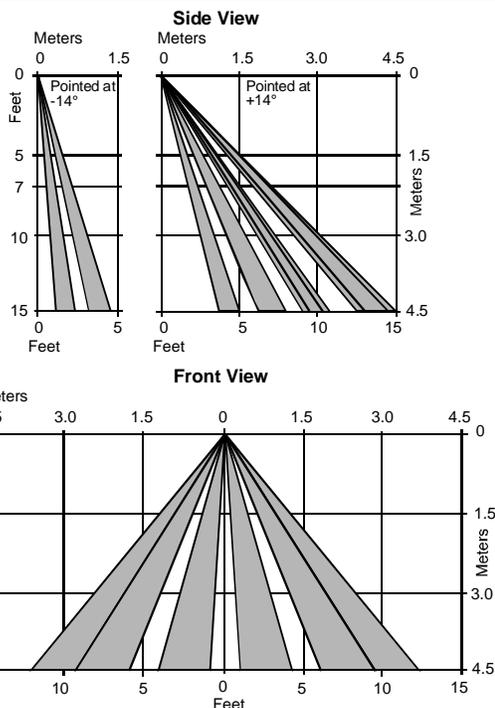


Figure J - Standard Patterns for a Wall Mounted Unit

12.0 Application Notes

12.1 General

Double entry/exit doors **without** a center post present a problem resulting from a gap that may exist between doors. While the gap is usually filled with soft or pliable weather stripping, an opening still exists that can be used by vandals to insert an object (e.g. a comb or ruler) through and into the coverage pattern of the detector. If the object is a different temperature than the background, the DS150i will interpret the temperature change as a request to exit.

Installing a DS150i over the center of double doors **with** a center post is the recommended installation practice.

When no center post exists, however, alternative mounting options should be considered. The alternative mounting options should move the center of the pattern away from the gap.

12.2 Ceiling Mount

Mount the DS150i to the ceiling away from the door. Longer objects might still be used to enter the coverage pattern. However, this type of entry would now be much more difficult.

12.3 Dual Mount

Install one DS150i over each of the two doors and wire the outputs so either detector will permit exiting. Center the DS150i over each door. To reduce the probability of interference by foreign objects, mask out the **inside** zones (K & L of one detector, and A & B of the other detector). See Figure K below:

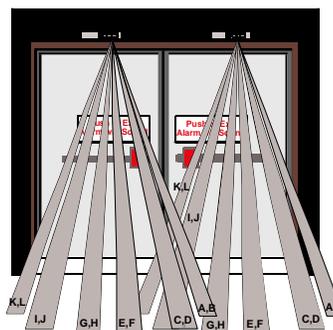


Figure K - Masking a Dual Mount