

DT-900 Series DUAL TEC® Motion Sensor Supplemental Information

MOUNTING LOCATION

Aim the sensor toward the interior of the room, away from windows, moving machinery, and heating/cooling sources.

Make sure the sensor has a clear line-of-sight to all areas you wish to protect. If the PIR is blocked, the unit will not alarm.

TAMPER

The sensor cover is tamper protected.

WIRING

Reverse polarity will not damage the sensor.

Knockouts are provided to allow wire entry via 1/2" EMT or surface wiring conduit.

NOTE: For proper wiring methods, refer to the National Electrical Code NFPA 70.

INFORMER MODE

The INFORMER circuit counts the number of events registered by both the microwave and PIR technologies, and uses the resulting ratio to determine if either technology is working properly or is misapplied. Establish the INFORMER mode using switch S2. (See Step 7.)

Mode 1: Set S2 to position 1. In Mode 1, 32 PIR events without a microwave event will cause the unit to go into PIR INFORMER. 128 microwave events without a PIR event will cause the unit to go into microwave INFORMER. One LED indication does not relate to one PIR event.

Mode 2: Set S2 to position 2. In Mode 2, 16 PIR events without a microwave event will cause the unit to go into PIR INFORMER. 16 microwave events without a PIR event will cause the unit to go into microwave INFORMER. One LED indication does not relate to one microwave event.

NOTE: The Mode 2 setting is not recommended. Use **only** if fast INFORMER activation is required.

Disabled: To disable INFORMER function, set S2 to the open position.

When an INFORMER condition occurs, the trouble relay opens, and the LEDs display an INFORMER trouble code. The sensor performs a self-test within the hour to determine if the problem is internal.

If a self-test error is detected, the self-test LED pattern, all three LEDs flashing, replaces the INFORMER LED pattern.

If no self-test error occurs, the unit continues to display the INFORMER LED pattern and relay remains open. The problem is misapplication. Walk-test the sensor to pinpoint the cause. (Refer to **Troubleshooting** Table 3.)

TROUBLESHOOTING

Vertical Adjustment

Various mounting locations may require fine vertical adjustment (e.g. uneven walls or floors, etc.). During the walk-test, if the PIR is short-ranged, turn the Vertical Adjust Screw **counterclockwise**. If the PIR is over-ranged, turn the Vertical Adjust Screw **clockwise**. (See Step 5.)

Self-Test

The sensor microcontroller automatically performs a series of self-tests in the following instances: when the unit is powered up, when the tests are installer initiated, upon Command Input, or every hour during normal operation. When a self-test error occurs, the Trouble relay opens and all 3 LEDs flash until the problem is corrected. If the problem persists and the LEDs continue to flash, the unit is defective and must be returned for repair.

Trouble Memory

If the LED pattern disappears before you see it, you can retrieve the pattern. The trouble memory feature stores the last LED pattern from a self-test detected problem or an INFORMER condition.

To recover the LED pattern, first open the Top Cover (see Step 2). Using a small screwdriver, momentarily short circuit the two Self-Test pads located on the printed circuit board (see Supplemental Information, Figure 1). The trouble LED pattern will be re-displayed.

Short the pads with the screwdriver again to clear the LED pattern and initiate a self-test.

INFORMER Conditions

Table 3 describes two trouble alerts which are reported by the INFORMER circuit. To use this troubleshooting matrix:

- 1) Find the trouble alert that describes the condition of the walk-test LEDs (with no motion in the area).
- 2) Walk-test the sensor, carefully watching the reaction of the diagnostic LEDs.
- 3) Refer to the **Possible Causes** column of the matrix for an explanation of the way in which the diagnostic LEDs reacted to the walk-test.

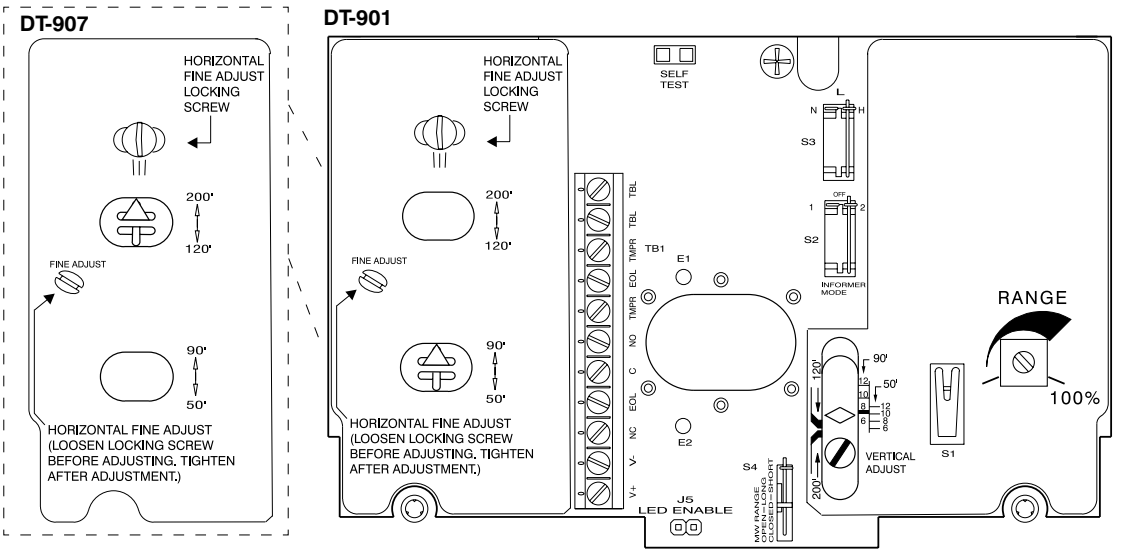


Figure 1
DT-901/907 Printed Circuit Board

Feet	6	8	10	12	14	50	90	120	200
Meters	1.8	2.4	3	3.7	4.3	15	27	37	61

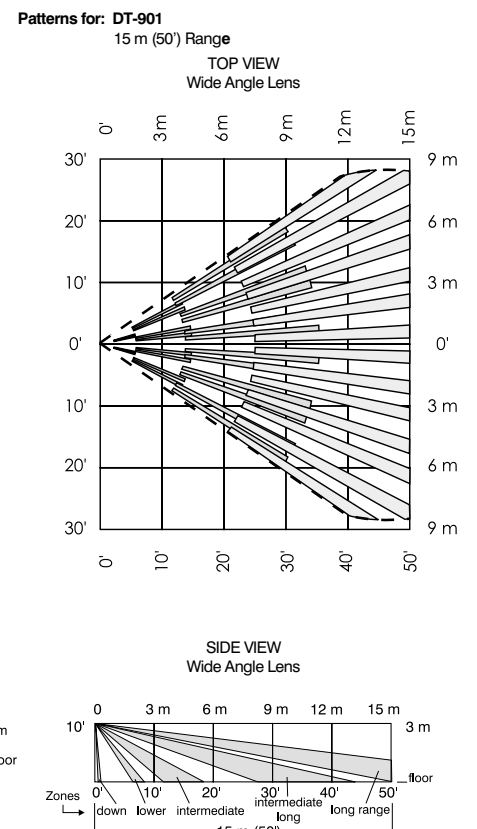
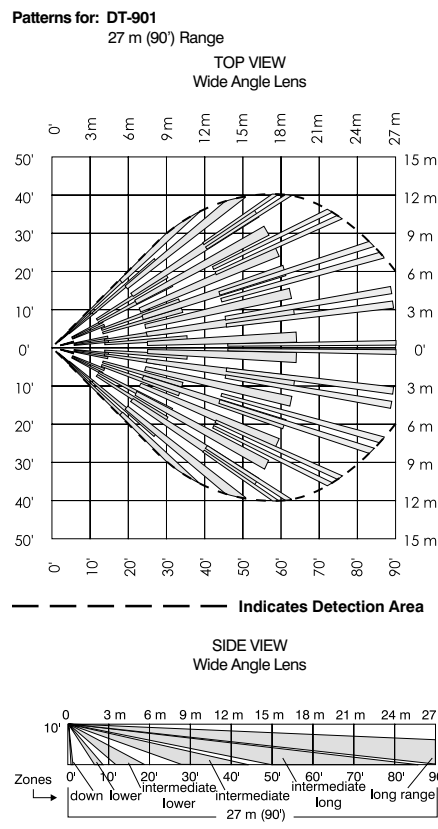
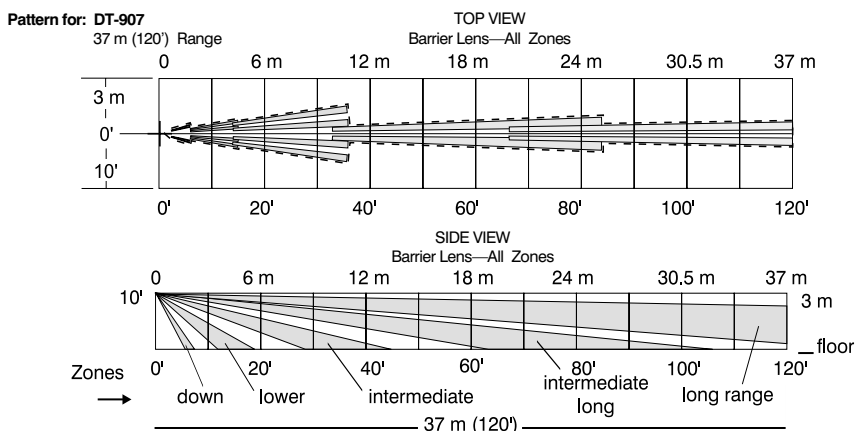
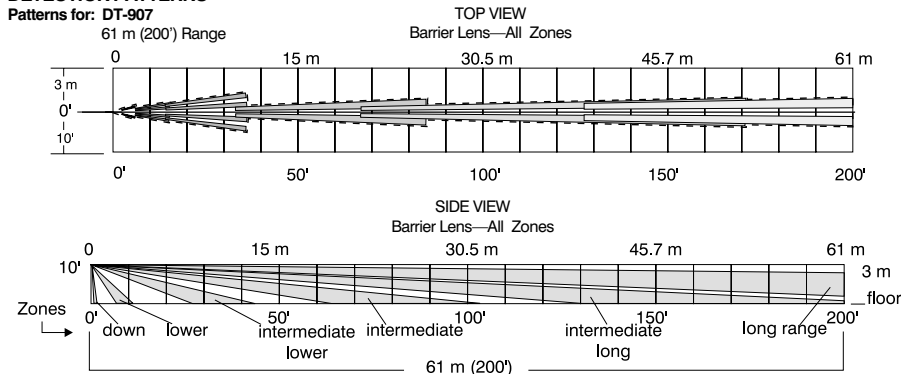
Table 3 INFORMER
Troubleshooting Matrix

Condition of LEDs with No Motion	Reaction of LEDs to Walk-Test			Type of Problem	Possible Causes
	PIR (Green)	ALARM (Red)	MW (Yellow)		
				RATIO IMBALANCE	MW environmental problem MW unstable MW range too long PIR was blocked
				RATIO IMBALANCE	PIR range too short PIR aimed wrong PIR not reporting
				RATIO IMBALANCE	PIR environmental problem PIR unstable MW range too short
				RATIO IMBALANCE	MW range too short MW not reporting

LED Legend: = LED is Flashing Slow = LED is OFF

NOTE: If you enter the detection pattern and the LEDs go off, you can retrieve the LED pattern to pinpoint the problem. Refer to **Trouble Memory** above.

DETECTION PATTERNS



PRODUCT SPECIFICATIONS

Range: DT-907 37 m x 3 m / 61 m x 5 m 120' x 10' / 200' x 15' DT-901 15 m x 12 m / 27 m x 21 m 50' x 40' / 90' x 70'	Trouble relay: De-energized Form B (Normally closed) 30 VDC, 25mA	2 down 27 m (90') Range 18 long 18 intermediate long 16 intermediate 12 intermediate lower 8 lower 2 down 15 m (50') Range 18 long 16 intermediate long 12 intermediate 8 lower 2 down	Dimensions: 20 cm x 16.5 cm x 15.2 cm 8" x 6 1/2" x 6"
Alarm relay: Energized Form C 25 VDC, 125 mA 22 ohm series protection resistor	Sensitivity: 2 - 4 steps within field of view	8 lower 2 down 15 m (50') Range 18 long 16 intermediate long 12 intermediate 8 lower 2 down	Weight: 1.36 kg / 3 pounds Packaged product: 1.6 kg / 3.5 pounds
Power requirements: 10 - 15 VDC 50 mA (max) at 12 VDC AC Ripple: 3V peak-to-peak at nominal 12 VDC	Tamper: Top Cover 30 VDC, 25 mA (NC)	16 intermediate long 12 intermediate 8 lower 2 down	Approvals/listings: FCC certified Industry Canada UL listed ULC listed
PIR white light immunity: 6500 Lux	PIR fields of view: 61 m (200') Range 2 long 6 intermediate long 4 intermediate 4 intermediate lower 8 lower 2 down 37 m (120') Range 6 long 4 intermediate long 4 intermediate 8 lower	Microwave frequencies: X band	
RFI immunity: 30 V/m, 10 MHz - 1000 MHz		Operating temperature: 0° to 49° C / 32° to 120° F	
		Relative humidity: 5% to 95% relative humidity (non-condensing)	

IMPORTANT: DT-900 Series sensors should be tested at least **once each year** to ensure proper operation.

FCC NOTICE: This equipment has been tested and found to comply with the limits for a field disturbance sensor, pursuant to Part 15 of the FCC Rules. The user is cautioned that changes or modifications not expressly approved by IntelliSense could void the user's authority to operate this equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

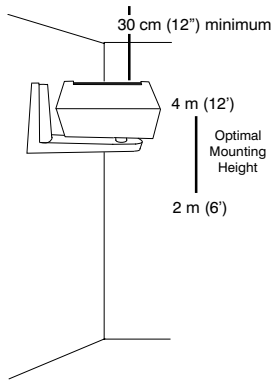
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

IC Notice: Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

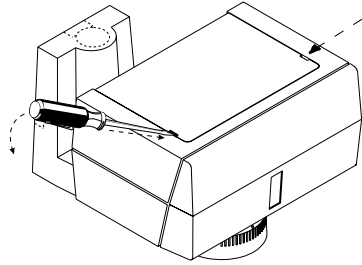
Note: The ULC label or listed marking on a product is the only evidence provided by Underwriters Laboratories of Canada to identify products that have been produced under the Listing and Follow-Up Service.

DT-900 Series DUAL TEC® Motion Sensor for Commercial and Light Industrial Applications—Installation Instructions

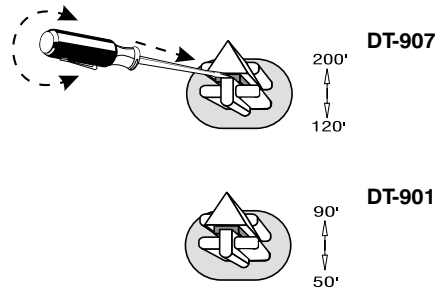
Step 1
Select mounting height.



Step 2
Carefully push screwdriver into slots to disengage latches and open top cover.



Step 3
Firmly insert screwdriver into slot in arrow and rotate PIR Mirror Selector to the correct range.



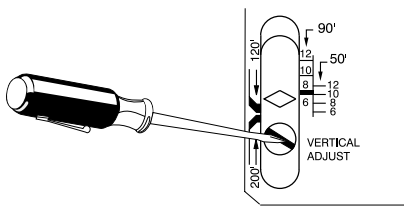
Step 4
Set switch S4 to establish microwave range.



MODEL	RANGE	Switch S4	MIRROR Selector
DT-907	61 m (200')	OPEN*	200' *
DT-907	37 m (120')	CLOSED	120'
DT-901	27 m (90')	OPEN*	90' *
DT-901	15 m (50')	CLOSED	50'

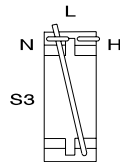
*Factory default setting.

Step 5
Locate correct sensor range scale and rotate Vertical Adjustment Screw until the diamond corresponds to the sensor mounting height (coarse adjust).



NOTE: Fine adjust may be needed during walk-test. See Supplemental Information.

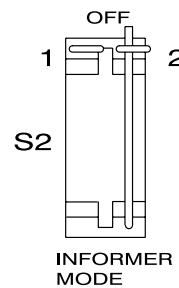
Step 6
Set switch S3 to establish the sensitivity best suited to your application.



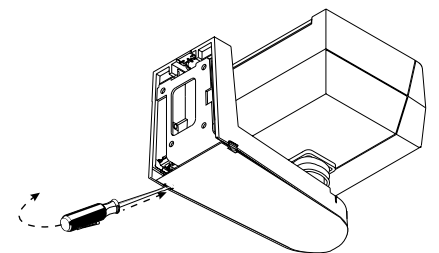
SENSITIVITY	S3
HIGH	H
NORMAL	N*
LOW	L**

*Factory default setting. **Not connected
**Not recommended for DT-906

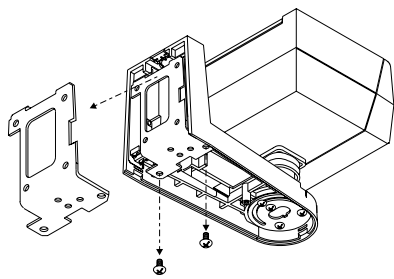
Step 7
Select INFORMER® mode with switch S2, if desired. (See Supplemental Information).



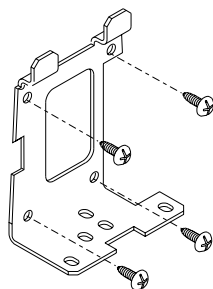
Step 8
Carefully push screwdriver into slot to disengage latch and remove bottom cover.



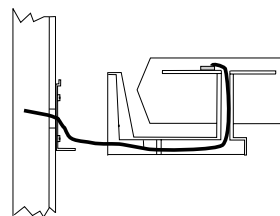
Step 9
Unfasten screws and remove mounting plate from sensor.



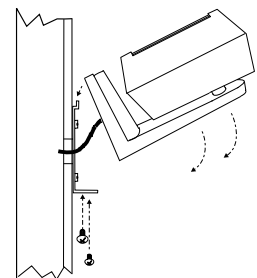
Step 10
Attach mounting plate to wall at desired height, using four fasteners (not supplied).



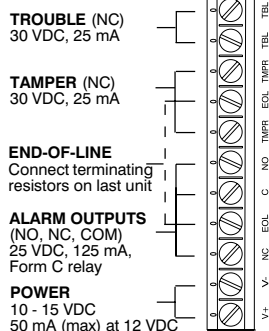
Step 11
Pull about 30 cm (12") of wire from wall through the opening in the mounting plate and route wire to the terminal strip.



Step 12
Hang the sensor on the mounting plate hooks and fasten with the two mounting plate screws.

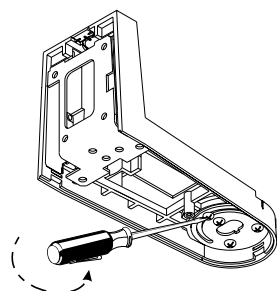


Step 13
Wire the unit as shown.
Use 2.0 - 0.3 mm² (14-22 AWG).

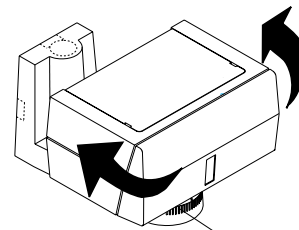


NOTE: Secure wires to mounting plate with tie wraps.

Step 14
Loosen horizontal locking screw in sensor support base.



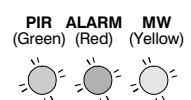
Step 15
Grasp housing and rotate it to the desired position (coarse adjust). If fine adjust is needed see Steps 20-22.



NOTE: Reference marks = 5° change.

Step 16
Apply power to sensor and prepare for walk-test.

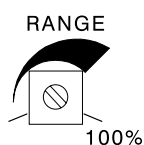
- Wait 90 seconds for power-up self-test to run. All LEDs will flash.



NOTE: LEDs flashing after 90 sec. = defective

Step 17
Turn the microwave potentiometer **counterclockwise** to decrease the microwave range to **minimum**.

During walk-test, gradually turn the potentiometer **clockwise** increasing microwave sensitivity until the desired range is obtained.

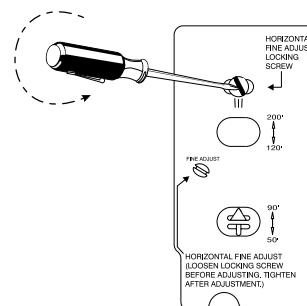


Step 18
Walk-test the sensor to check for adequate detection coverage and to verify the sensor is fully functional. Two to four normal steps should make the LEDs light and trigger an alarm.

NOTE: If an on-going self-test problem or an INFORMER condition occurs, the LEDs display a pattern that identifies the trouble. See Supplemental Information (Table 3).

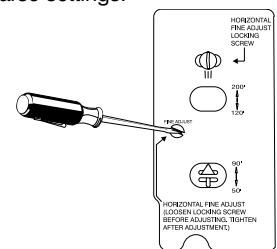
NOTE: When there is no motion in the detection area, all three LEDs should be off.

Step 19
For finer horizontal adjustments, loosen the PIR horizontal fine locking screw on PCB.

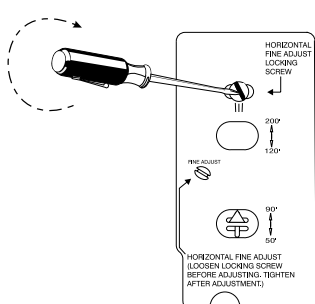


Step 20
Rotate horizontal fine adjust knob to the desired position.

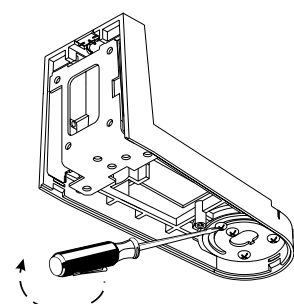
NOTE: Fine adjustment allows for small changes (3 degrees right or left) between coarse settings.



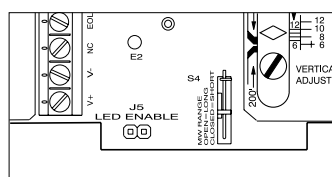
Step 21
Tighten horizontal fine locking screw on PCB.



Step 22
Tighten horizontal locking screw in sensor support base.



Step 23
Remove jumper at J5, on the PCB, to disable the LEDs after walk-testing.



Step 24
Complete installation by closing top cover and replacing bottom cover.

