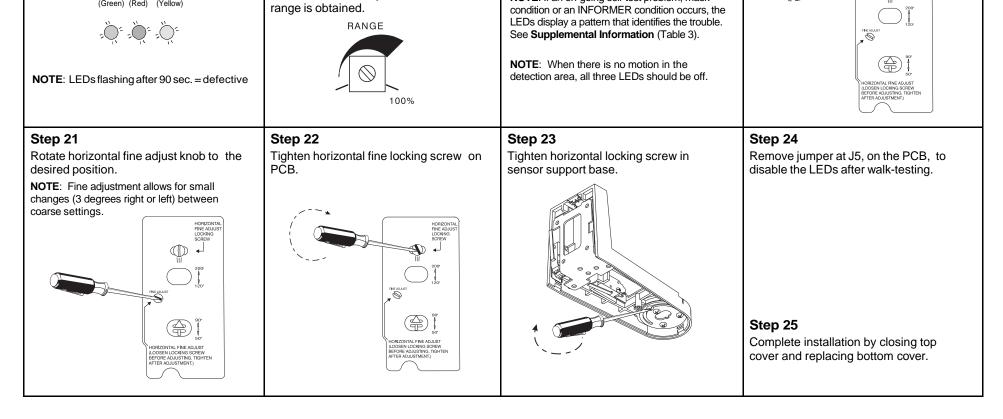
DT-900 Series DUAL TEC[®] Motion Sensor for Commercial and Light Industrial Applications - Installation Instructions

Step 1 Step 2 Step 3 Step 4 Select mounting height. Carefully push screwdriver into slots to Firmly insert screwdriver into slot in arrow Set switch S4 to establish microwave disengage latches and open top cover. and rotate PIR Mirror Selector to the range. 30 cm (12") minimum <u>S4</u> correct range. n (12') DT-906 Optimal 200 Mounting Height 2 m (6') 120 MODEL RANGE Switch S4 DT-900 Mounting Location Guidelines DT-906 61 m (200' OPEN* 200' 90 Avoid direct or reflected sunlight, infrared light. Aim sensor away from windows, heating/cooling devices or DT-906 37 m (120') CLOSED 120' large moving objects. 27 m (90') OPEN* 90'* DT-900 Sensor must have a clear line-of-sight to protected area. 50 DT-900 15 m (50') CLOSED 50' Keep at least 1 meter (3') of space in front of sensor clear Step 6 Step 5 Step 7 Step 8 Locate correct sensor range scale and Set switch S3 to establish the sensitivity Select INFORMER® mode with switch Carefully push screwdriver into slot to rotate Vertical Adjustment Screw until the best suited to your application. S2 if desired. (See Supplemental disengage latch and remove bottom diamond corresponds to the sensor Information). cover. mounting height (coarse adjust). OF S3 2 S2 SENSITIVITY S3 /ERTICAL HIGH Η NORMAL N* LOW INFORMER NOTE: Fine adjust may be needed during MODE *Factory default setting. **Not connected walk-test. See Supplemental Information. *Not recommended for DT-906 Step 9 Step 10 Step 11 Step 12 Install M5 (#10) screw in wall 1.9 cm Unfasten screws and remove mounting Attach mounting plate to wall at desired Pull about 30 cm (12") of wire from wall through the opening in the mounting plate from sensor. height, using four fasteners (not (3/4") below mounting screw, as shown, for tamper activation. supplied). plate and route wire to the terminal strip. 1.9 cm Step 13 Step 14 Step 15 Step 16 INPUTS 1 & 2 Hang the sensor on the mounting plate Wire the unit Loosen horizontal locking screw in Grasp housing and rotate it to the desired hooks and fasten with the two mounting Cenelec mode sensor support base. position (coarse adjust). If fine adjust is as shown. MASK DETECT (NC) 30 VDC, 25 mA plate screws. needed see Steps 20 - 22. TROUBLE (NC) Use 2.0 - 0.3 mm² 30 VDC, 25 n (14 - 22 AWG) TAMPER (NC) 30 VDC, 25 mA END-OF- LINE sistors on last uni NOTE: Secure ALARM OUTPUTS (NO, NC, COM) 25 VDC, 125 mA wires to mounting plate with POWER 10 - 15 VDC 50 mA (max) at 12 VDC tie wraps. NOTE: Reference marks = 5° change. Step 17 Step 18 Step 20 Step 19 Apply power to sensor and prepare for Turn the microwave potentiometer Walk-test the sensor to check for For finer horizontal adjustments, loosen counterclockwise to decrease the adequate detection coverage and to the PIR horizontal fine locking screw on walk-test. microwave range to minimum. verify the sensor is fully functional. Two to PCB. four normal steps should make the LEDs · Wait 90 seconds for power-up self-test During walk-test, gradually turn the light and trigger an alarm. to run. All LEDs will flash. potentiometer clockwise increasing PIR ALARM MW (Green) (Red) (Yellow) microwave sensitivity until the desired NOTE: If an on-going self-test problem, mask



DT-900 Series DUAL TEC® Motion Sensor Supplemental Information

MOUNTING LOCATION DT-900 DT-906 Aim the sensor toward the interior of the room, away from windows, moving machinery, and heating/ Ŧ HORIZONTA FINE ADJUS LOCKING SCREW HORIZONTAL FINE ADJUST LOCKING SCREW cooling sources. SELF REMOTE 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 covers and wall mounting are tamper protected. A screw must be installed in the wall to utilize the tamper feature. WIRING MODE Reverse polarity will not damage the sensor. 120 E TB1 Knockouts are provided to allow wire entry via 1/2" EMT or surface wiring conduit. FINE ADJUST -4 Ø, 0 0 NOTE: For proper wiring methods, refer to the National Electrical Code NFPA 70. 0 RANGE 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.) <u>ح</u>لہ TF \bigcirc 0 RIZONTAL FINE ADJUST 0 100% Mode 1: Set S2 to position 1. In Mode 1, 32 PIR events without a microwave event will cause the OOSEN LOCKING HORIZONTAL FINE ADJUST () E2 BEFORE ADJUSTING. TIGHTEN (LOOSEN LOCKING SCREW BEFORE ADJUSTING, TIGHTEN AFTER ADJUSTMENT.) unit to go into PIR INFORMER. 128 microwave events without a PIR event will cause the unit to go AFTER ADJUSTMENT) 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. 10 microwave events without a PIR event will cause the unit to go into provide PIR INFORMER. 20 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. Figure 1 DT900 Printed Circuit Board 14 50 $\textbf{NOTE}: The \, \texttt{Mode 2} \, \texttt{setting is not recommended}. \, \text{Use only if fast INFORMER} \, \texttt{activation}$ Meters 1.8 61 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.)

INPUT MODES

The DT-900 Series accommodates several international operating requirements using two operating modes-Standard mode with remote LED enable and Command Input capability or European 2-Wire CENELEC mode (INPUT 1 and INPUT 2). For Standard Mode, remove jumper J4 and install jumper J6. For CENELEC mode, remove jumper J6 (See Figure 1).

Table 1	Standard	Mode-J6	Installed

Table 1 Standard Mode-J6 Installed			dard Mode-J6 Installed Table 2 CENELEC Mode-J6 Removed					
	Input Condition				Operating Mode			
	HIGH/Not connected	LOW			Alert	Local Test	Standby	Remote Test
Input 1	LEDs Disabled	LEDs Enabled		Input 1	high	low	high	low
Input 2	Normal Operation	Self-test		Input 2	high	high	low	low

NOTES For Standard Mode/INPUT 2 (remote self-test) use only-install jumper J4 If enabled, the green and yellow LEDs will light only during the walk-test period. The walk-test period begins about 30 seconds after the system is turned on, and lasts for 10 minutes.

Table 4 Cenelec Functions

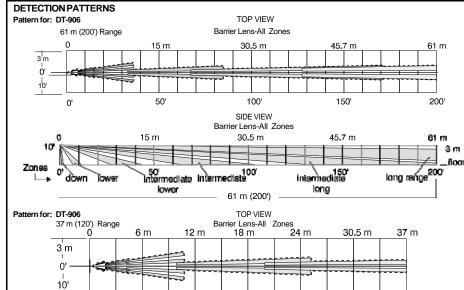
11		Operating Mode				
		Alert	Local Test	Standby	Remote Test	Remote Test Mode
11	Walk Test LED's	Disabled	Enabled	Disabled	Disabled	Causes the unit to enter a remote self-test
Iſ	Microwave Oscillator	On	On	Off	On	(ongoing self-test). The Anti-Mask Output
Iſ	Alarm Outputs	Enabled	Enabled	Frozen	Enabled	becomes a "test running"
Iſ	Alarm Memory Activated	Yes	No	No	Yes	output and remains open for the duration of the
Iſ	Alarm Memory Reset	Only when Entering	No	No	No	test. If the unit passes all
	Alarm Memory Displayed (Red LED flashing)	Disabled	Enabled	Enabled	Disabled	the self- tests, the alarm relay is activated for one second
	Trouble	Disabled	Enabled	Enabled	Disabled	

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 shortranged, 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 tests are installer initiated, upon Command Input, or every hour during normal operation. A self-test error causes the Trouble relay to open 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 re



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.

Anti-Mask

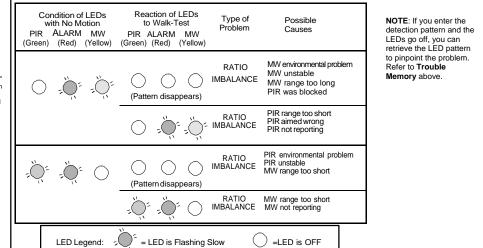
The DT-900 Series anti-mask feature detects attempts to block or cover the sensor by sending an active infrared beam out into the sensor's field-of-view, at regular 8 second intervals. If the DT-900/DT-906 is blocked or covered (i.e. with a box or fabric) the beam s reflected back to the sensor. After two consecutive reflected beams, the sensor signals a trouble condition-green and red LEDs flash rapidly and the mask relay opens.

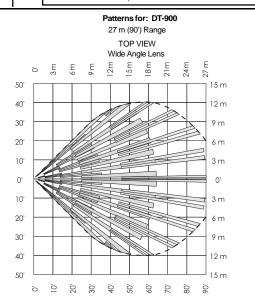
INFORMER Conditions

- Table 3 describes two trouble alerts which are reported by the INFORMER circuit. To use this troubleshooting matrix:
- Find the trouble alert that describes the condition of the walk-test LEDs (with no motion in the area) Walk-test the sensor, carefully watching the reaction of the diagnostic LEDs. 1) 2)
- 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.

Table 3 INFORMER **Troubleshooting Matrix**







- Indicates Detection Area

12 m 15 m 18 m 21 m 24 m 27

50' 60' 70' 80' ediate long rar

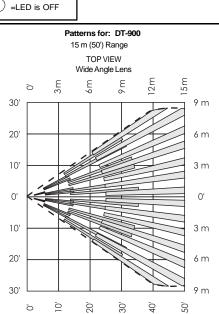
long

SIDE VIEW

Wide Angle Lens

27 m (90') _

40'



SIDE VIEW

Wide Angle Lens

6 m

20

mediate 15 m (50')

3 m

10

Zones

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90

9m 12m

30' intern

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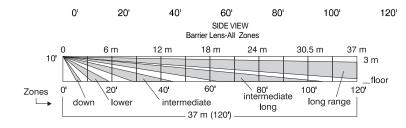
15 m

50

inge

3 m

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PRODUCT SPECIFICATIONS

PRODUCT SPECIFICATIONS <i>Range:</i> <i>DT-906</i> 37 m x 3 m / 61 m x 5 m 120' x 10' / 200' x 15' <i>DT-900</i> 15 m x 12 m / 27 m x 21 m 50' x 40' / 90' x 70' <i>Alarm relay:</i> Energized Form C; 25 VDC, 125 mA 22 ohm series protection resistor <i>Power requirements:</i> 10 - 15 VDC; 50 mA (max) at 12 VDC AC Ripple: 3V peak-to-peak at nominal 12 VDC <i>PIR white light immunity:</i> 6500 Lux <i>RFI immunity:</i> 30 V/m, 10 MHz – 1000 MHz <i>Trouble relay:</i> De-energized Form B; (Normally closed); 30 VDC, 25 mA	Mask relay: De-energized Form B (Normally closed) 30 VDC, 25 mA Input 1 & 2: Self-test initiate Active low 0 to 1.5V Inactive high 5 to V+ Sensitivity: 2 - 4 steps within field of view Tampers: Wall, top & bottom covers 30 VDC, 25 mA (NC) PIR fields of view: 61 m (200') Range 2 long 6 intermediate long 4 intermediate lower 8 lower 2 down	37 m (120') Range 6 long 4 intermediate long 4 intermediate long 8 lower 2 down 27 m (90') Range 18 long 16 intermediate long 16 intermediate 2 down 15 m (50') Range 18 long 16 intermediate long 16 intermediate long 12 intermediate long 12 intermediate 8 lower 2 down	Microwave frequencies: X band Operating temperature: 0° to 49° C / 32° to 120° F Relative Humidity: 5% to 95% relative humidity (non-condensing) Dimensions: 20 cm x 16.5 cm x 15.2 cm 8" x 6 1/2" x 6" Weight: 1.36 kg / 3 pounds Packaged product: 1.6 kg / 3.5 pounds Approvals/listings: FCC certified Industry Canada UL listed ULC listed	 IMPORTANT: DT-900 Series sensors should be tested at least once each year to ensure proper operation. FEDERAL COMMUNICATIONS COMMISSION STATEMENTS The user shall not make any changes or modifications to the equipment unless authorized by the Installation Instructions or User's Manual. Unauthorized changes or modifications could void the user's authority to operate the equipment. CLASS B DIGITAL DEVICE STATEMENT: This equipment has been tested to FCC requirements and has been found acceptable for use. The FCC requires the following statement for your information: This equipment generates and uses radio frequency energy and if not installed and used property, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause 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: Rooient the receiver/ontol into a different outlet so the receiver/control. Move the radio or television receiver away from the receiver/control. Plug the receiver/control into a different outlet so that it and the radio or television receiver are on different branch circuits. Consult the dealer or an experienced radio/TV technician for help. INDUSTRY CANADA CLASS B STATEMENT This device may not cause harmful interference, and (2) This device must accept any interference rec
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