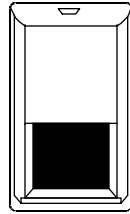




# DT-400T Series

## INSTALLATION INSTRUCTIONS

DT-420T	20' x 20'	6 m x 6 m
DT-435T	35' x 30'	11 m x 9 m
DT-435TC	35' x 30'	11 m x 9 m
DT-450T	50' x 40'	15 m x 12 m
DT-450TC	50' x 40'	15 m x 12 m



DT-400T series motion sensors combine two technologies into one small, attractive package. Within a defined area, the microwave detector senses motion, and the passive infrared (PIR) detector responds to radiant body heat (infrared energy emitted by an intruder).

DT-400T sensors also feature a new **TURBO** circuit which provides more protection against false alarms than ever before. The TURBO circuit allows the microwave to "idle" until the PIR detects a change in infrared energy.

When the PIR detects a change in infrared energy, the microwave instantly becomes "alert." If it detects motion within a specific time period, the sensor will alarm. Because both technologies must verify intrusion at or about the same time, *false alarms are virtually eliminated.*

In addition, DT-400T sensors are equipped with a supervision circuit that constantly monitors the microwave technology. If a problem is detected, the sensors will electronically signal an alarm to the control panel.

DT-400T sensors are also among the first to have both a Fresnel lens and multi-segmented PIR mirror. This unique optical system provides dense PIR coverage from directly beneath the unit (look-down zones) to maximum range.

### FEATURES

- Microwave/PIR technology
- New TURBO circuit
- Dual element PIR
- Microwave supervision
- Unique PIR optics
- Single edge PIR triggering
- Low 35 mA current draw at 12 VDC
- 9 - 14 VDC operation
- Exposed LEDs
- All models are UL listed
- Enhanced run-through detection
- Automatic temperature compensation
- Energized Form A alarm relay DT 420T, DT 435T, DT 450T
- Energized Form C alarm relay DT 435TC, DT 450TC
- Shorter reset times
- Optional barrier and pet-alley lenses available.
- DT-435TC and DT450TC are also ULC listed

### MOUNTING LOCATION

Select the best location in the room for both technologies. Aim the sensor toward the interior of the room, away from windows, moving machinery, and heating/cooling sources.

**Maximum range is obtained at a mounting height of 7'6" (2.3 m).** Make sure the sensor has a clear line of sight to all areas you wish to protect. Infrared radiation cannot penetrate solid objects. If the PIR is blocked, the unit will not alarm.

### MOUNTING PROCEDURE

To remove the sensor's front cover, use a small screwdriver to push down on the latch at the top of the unit, while separating the housing parts.

To remove the printed circuit board (PCB), lift up on the latch at the top of the unit, while using the microwave antenna to gently pull the PCB forward.

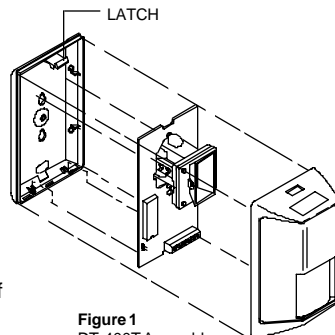
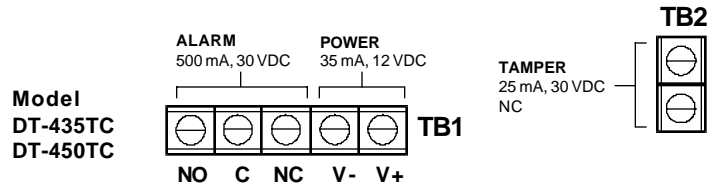
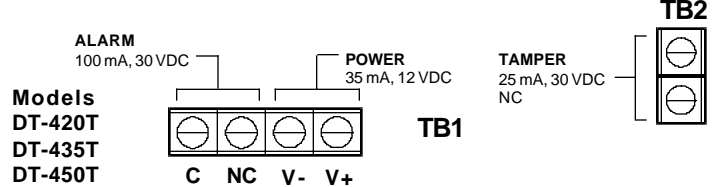


Figure 1  
DT-400T Assembly

Securely mount the rear housing at the desired location. When mounting the sensor on a wall, use the two keyholes in the back of the rear housing. When mounting the sensor in a corner, use the breakout tabs on the beveled corners of the unit. A swivel mount bracket (Model DT-4SW) is also available from C&K Systems.

### WIRING

**Observing the proper polarity,** wire the sensor as shown below (use 22 - 14 AWG). Do not leave excess wire inside the unit. Push as much of the wire as possible back into the wall when returning the PCB to its housing.



### CHANGING THE FRESNEL LENS

To change the Fresnel lens, remove the sensor's front cover. Next remove the lens retainer by depressing the retainers brackets on either side of the lens retainer.

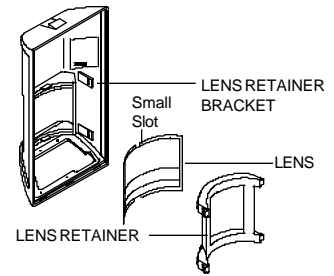


Figure 2  
Lens Change Assembly

Take out the existing lens, and put the new one in with the SMOOTH side facing outward. Install the lens with the small slot at the top. The large slot on the bottom of the lens should be seated over the tab on the bottom of the front cover. Snap the lens retainer back into place, then re-assemble the housing.

**NOTE:** Two additional lenses are available for these sensors. The pet-alley lens blocks lower PIR zones to exclude pets from the field of view; the barrier lens blocks outer zones for narrow applications.

When the pet-alley lens is used, install a look-down mask (provided) over the inside of the look-down window, and make sure to mount the sensor at a height of 4'.

The optional lenses are available at no charge from your local distributor, or call C&K Systems, Inc. at (800) 227-8065. Order Part Number 0-000-400-03.

### SYSTEM TESTING

All the walk-test LEDs are located at the bottom, left side of the unit. DT-400T sensors are equipped with two diagnostic LEDs: green for PIR and yellow for microwave. The red LED is used to indicate an alarm condition.

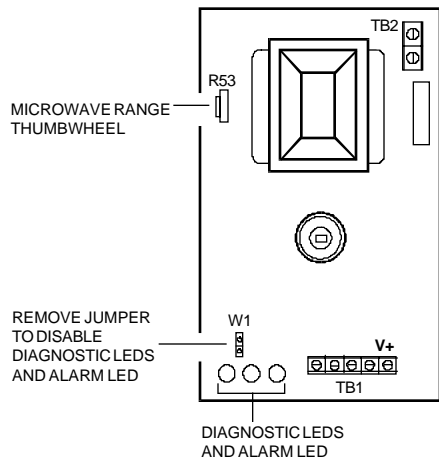
Apply power to the sensor and let it warm up for at least three minutes. Begin walk-testing after all three LEDs have gone out.

### RANGE ADJUSTMENT

A range thumbwheel for the microwave is located at the upper left edge of the PCB (R53). When the PCB is oriented in the correct mounting position, and you are facing it, **turning the thumbwheel toward the bottom of the PCB will INCREASE the range of the microwave.** Refer also to the label pasted on the microwave antenna.

Before walk-testing the sensor, set the microwave range thumbwheel at MINIMUM by turning it toward the top of the PCB (as far as it will go). Then, as you perform the walk-test, gradually increase the sensitivity of the microwave until the desired range is obtained.

PIR range is determined by the mounting height and angle, or by masking specific PIR zones.



**WALK-TEST**

Walk across the protected area at the ranges to be covered. Two to four normal steps should make the diagnostic LEDs light, and the red LED should indicate an alarm condition. When there is no motion in the protected area, all three LEDs should be off.

**MICROWAVE SUPERVISION**

If the microwave technology stops sending or receiving signals, the sensor will lock into an alarm condition and signal alarm to the control panel. The LEDs at the sensor, however, will not light.

If the microwave regains its signal, the sensor (and LEDs) will return to normal operation.

**LEDs DISABLE**

To disable the diagnostic LEDs and alarm LED, remove the jumper from position W1 on the PCB.

**PRODUCT SPECIFICATIONS**

**Range:**

DT-420T	20' x 20'	(6 m x 6 m)
DT-435T	35' x 30'	(11 m x 9 m)
DT-435TC*	35' x 30'	(11 m x 9 m)
DT-450T	50' x 40'	(15 m x 12 m)
DT-450TC*	50' x 40'	(15 m x 12 m)

**White light immunity:**

60,000 candle power at 10' (3 m)

**PIR fields of view:**

- standard lens
- 22 long range
- 6 intermediate
- 3 lower
- 6 down

**Dimensions:**

5" H x 2-7/8" W x 2-5/16" D  
(13 cm x 7 cm x 6 cm)

**Weight:**

12 oz (340.2 g)

**Operating temperature:**

32° to 120° F (0° to 49° C)

**Sensitivity:**

2 - 4 steps within field of view

**Approvals:**

FCC certified \*ULC listed  
UL listed

**Alarm relay:**

DT-420T, DT-435T, DT-450T  
Energized Form A (NC)  
100 mA, 30 VDC  
DT-435TC, DT-450TC  
500 mA, 30 VDC  
Energized Form C

**Tamper switch:**

(NC)  
25 mA, 30 VDC

**Power requirements:**

9 - 14 VDC  
35 mA, 12 VDC

**Frequencies:**

center band 10.525 GHz

**NOTE:** The Pet Alley Lens is not to be used in a ULC Certified installation.

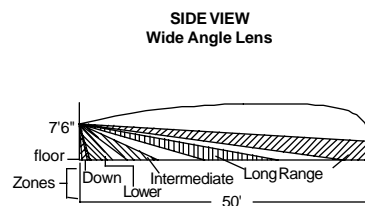
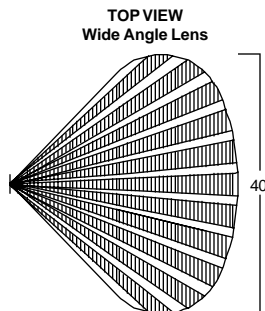
**FCC NOTICE**

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 C&K Systems could void the user's authority to operate this equipment.

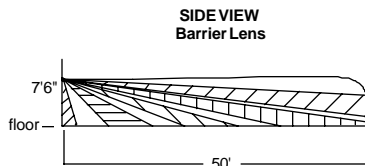
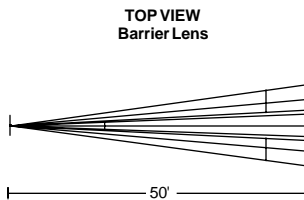
**PROTECTION PATTERNS**

Patterns Shown are for:  
**DT-450T and DT-450TC**

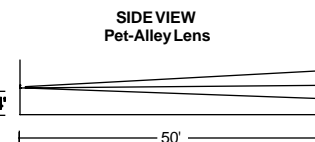
Use as reference for DT-420T, DT-435T, and DT-435TC



**PROTECTION PATTERNS FOR OPTIONAL LENSES**



The Top View Pet-Alley Lens is the same as the Top View Wide Angle Lens.



**IMPORTANT:** The DT-4XXT must be connected to a UL listed power supply or UL listed control unit capable of providing a minimum of four hours of standby power.

**NOTE:** The DT-4XXT should be tested at least once each year to ensure proper operation.

**NOTE:** The ULC label or listing markings 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.

**LIMITED WARRANTY**

Seller warrants its products to be in conformance with its own plans and specifications and to be free from defects in materials and workmanship under normal use and service for 18 months from the date stamp control on the product or for products not having a C&K Systems date stamp, for 12 months from the date of original purchase, unless the installation instructions or catalogue sets forth a shorter period, in which case the shorter period shall apply. Seller's obligation shall be limited to repairing or replacing, at its option, free of charge for materials or labor, any part which is proved not in compliance with Seller's specifications or proves defective in materials or workmanship under normal use and service. This warranty is void if the product is altered or improperly repaired or serviced by anyone other than C&K Systems factory service. For warranty service, return the product transportation prepaid to C&K Factory Service, 107 Woodmere Road, Folsom, CA, 95630.

THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE, WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. In no case shall Seller be liable to anyone for any consequential or incidental damages for breach of this or any other warranty, express or implied, or upon any other basis of liability whatsoever, even if the loss or damage is caused by Seller's own negligence or fault.

Seller does not represent that its product may not be compromised or circumvented; that the product will prevent any personal injury or property loss by burglary, robbery, fire or otherwise; or that the product will in all cases provide adequate warning or protection. Buyer understands that a properly installed and maintained alarm may only reduce the risk of burglary, robbery, or fire without warning, but it is not insurance or a guarantee that such will not occur or that there will be no personal injury or property loss as a result. CONSEQUENTLY, SELLER SHALL HAVE NO LIABILITY FOR ANY PERSONAL INJURY, PROPERTY DAMAGE, OR OTHER LOSS BASED ON A CLAIM THAT THE PRODUCT FAILED TO GIVE WARNING. However, if Seller be held liable, whether directly or indirectly, for any loss or damage arising under this Limited Warranty or otherwise, regardless of cause or origin, Seller's maximum liability shall not in any case exceed the purchase price of the product, which shall be fixed as liquidated damages and not as a penalty, and shall be the complete and exclusive remedy against Seller.

This warranty replaces all previous warranties and is the only warranty made by C&K Systems on this product. No increase or alteration, written or verbal, of the obligation of this warranty is authorized.