Environmental Concerns for Honeywell's DUAL TEC® and Passive Infrared (PIR) motion Detectors

The following explains environmental issues that should be taken into consideration with new installations or when troubleshooting problems with Honeywell's DUAL TEC® and Passive Infrared (PIR) motion detectors.

Concerns for only DUAL TEC® Motion Detectors

1. **Fluorescent lights** – If there are Fluorescent lights in the detection area of the microwave, make sure the detector has the fluorescent light filter feature as to not interfere with the microwave.
2. ***Wireless network Routers*** – DUAL TEC® motion detectors will interrupt or keep wireless routers from working if the router is using the same frequency as the microwave in the DUAL TEC® motion detectors. Example: The microwave in the DT500 motion detector runs at 2.54GHz and the Lynksys WRV54G wireless router runs at 2.4GHz. These frequencies, although slightly different, can cause a conflict depending on how close they are together. If you experience this problem, it is recommended to either change the wireless routers or the DUAL TEC® to one that is using a different frequency, relocate the DUAL TEC® so the microwave pattern does not cover the router, or use a PIR detector. There are 3 different frequencies that Honeywell's DUAL TEC® motions utilize: S-band, X-band, and K-band which are 2.54GHz, 10.525GHz, and 24.125GHz respectively.
3. ***Normal Disturbances*** **–** Some DUAL TEC® motions have feature called "Environmental Adaptation" which means the microwave thresholds are adapted either in hardware or digitally to remove the effect of low level interference such as ceiling fans.

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4. **Animals/Bugs** – If the premise has pets, make sure the correct detector is being used for pet immunity and follow the instructions from that detector for installations concerning pets. Most new models have built-in bug guards to keep bugs from getting into the detector and causing false alarms, however, this will not prevent a spider from crawling across the lens of the unit which will cause a unit to trip.
5. **Reflective Surfaces** – Infrared energy can be reflected off of any glossy surface such as mirrors, windows, floors with glossy finish, and slick finished concrete. Some surfaces will reflect less than others. Example: Detectors can see a change in infrared energy reflected off of any reflective surface even if the heat or cold source is not within the detection pattern of the detector.

6. **Windows** – Windows cannot only reflect infrared energy, but they can also allow sunlight or lights from cars to pass through to the detector. Example: A detector can detect a quick change in infrared energy if sun light comes through a window (which may not be "seen" by the detector) and shines on a hard wood floor (which can be "seen" by the detector). If the change in infrared energy is quick enough on the floor, the detector can trip. The same applies if the detector can "see" the window, even though the fields of view cannot "see" through glass. Halogen lights from cars can also pass through the window at night and directly into the lens of the detector. This is when we have to make sure the detector has the white light immunity feature. The models that have the built-in bug guard will help since the bug guard is black. This will help absorb some of that light.
7. **Heating and air registers** – Heating and air registers are also important to take into consideration because if they blow air onto an object within the fields of view, the temperature of that object could change quickly enough for the detector to see a change in infrared energy. Detectors cannot see air current; only the change in temperature of a physical object.
8. **Swaying objects**– Anything that can sway or move due to air current can cause a change in infrared energy within the fields of view. Heat and air registers, air drafts from windows or doors could cause this. Some objects to be aware of are curtains, blinds, balloons, loose paper, hanging banners, plants, etc.
9. **Warm environments** – If a motion detector is desired in a warm environment, make sure the unit has Advanced (Dual Slope) Temperature Compensation, also known as Bi-directional Temperature Compensation. If the unit is in an environment where ambient temperatures are close to human body temperature and cannot compensate for it, it may not be able to detect a person. Advanced Temperature Compensation will allow the unit to adjust itself to ambient temperatures within its environment so it can detect a person in a room in which its ambient temperature is close to the human body.
10. **Vibrations** – Make sure the structure that the detector is mounted on is sturdy as to not allow any vibrations. Vibration will not only cause the detector to move a little, but this will also cause the fields of view in the room to move with respect to the detector. A little vibration can go a long way with the fields of view, thus the detector can see a change in energy.
11. **Doors –** Some installations require detectors to be aimed at doors. If so, consider the setup. Detectors can "see" the door move before the door contact will initiate an entry delay and cause a false alarm. If the detector has to be in this type of location, it is recommended to program the detector via the control to initiate an entry delay.