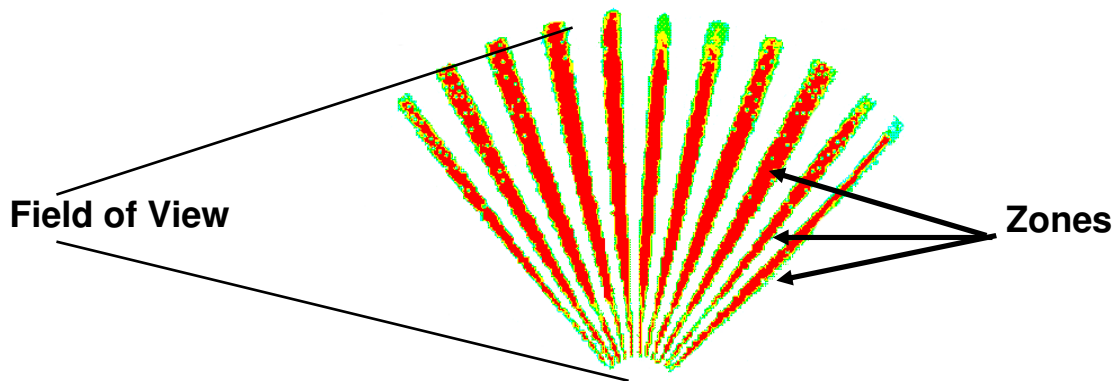


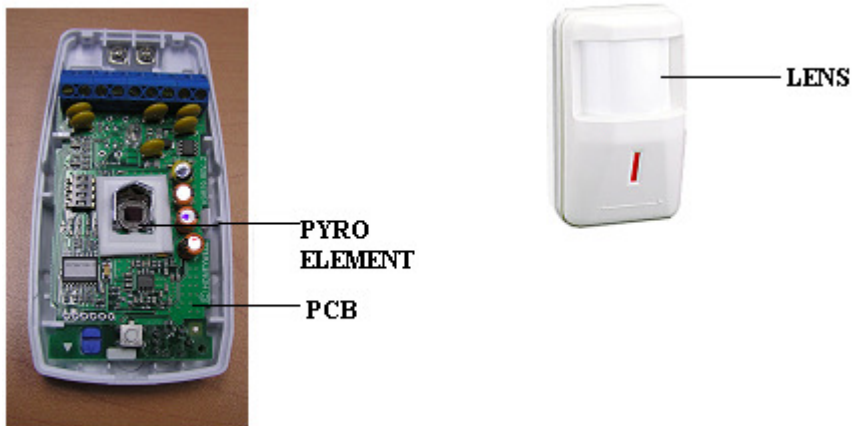
PIR & DUAL TECH Motion Detectors

PIR

- Passive Infrared; detects change in infrared energy (From hot to cold or cold to hot).



Components of a PIR

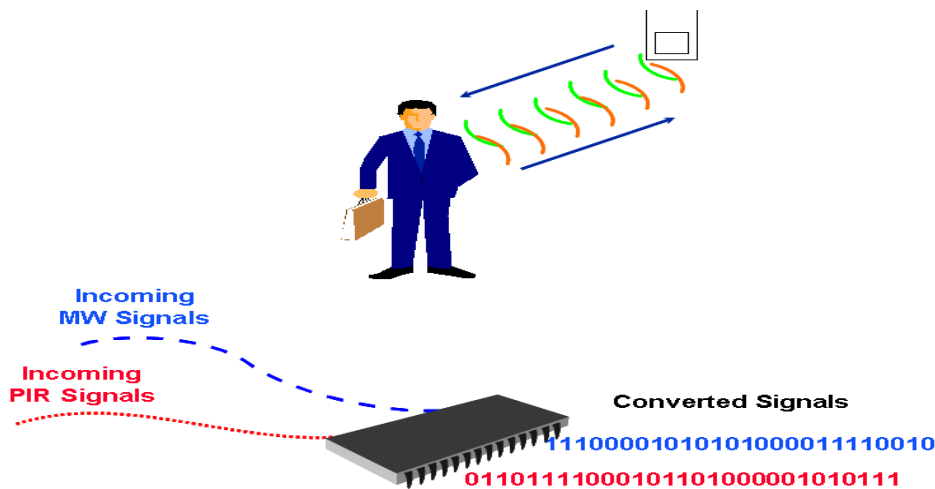


How a PIR works?

- Each Zone of the field of view delivers a uniform signal from the pyro-electric of the detector.
- The Fresnel lens focuses the change of energy into the Pyro detector.
- The incoming signal from the pyro detector is analyzed by the microcontroller.
- The microcontroller will then determine whether an alarm event has occurred.

DUAL TECH

- Utilizes 2 technologies to detect motion. Passive Infrared (PIR) and Microwave. The Passive Infrared detects a change in infrared energy (hot to cold or cold to hot) while the Microwave detects physical movement of any object, no matter its temperature, by using Doppler effect.



How a Dual Tech motion detector works?

- **In addition to the PIR, the sensor sends and receives microwave signals to detect motion in a room.**
- **Upon detecting an event on the PIR, the microcontroller immediately verifies whether an event has been detected by the microwave.**
- **Objects moving in the microwave's path reflect signals back to the sensor (Doppler effect).**
- **The sensor then analyzes this reflected wave signal.**
- **Once the microcontroller determines that events have been detected on both the PIR and the Microwave, the microcontroller, at this moment, determines if an alarm event has occurred.**

Factors that can cause false alarms in PIR

- **Power**
- **Animals/Bugs**
- **Reflective Surfaces**
- **Windows**
- **Air conditioning ducts**
- **Swaying objects**
- **Warm environments**

Advantages of Dual Tech motion detector over Normal PIR :

Since a Dual Tech detector determines if an alarm event has occurred only when events have been detected on both the PIR and the Microwave, the chances of a false alarm caused due to any one of the above reasons is less.

Factors that can cause false alarms in DUAL TECH motion detectors

- **Wireless network Routers**
- **Fluorescent lights**

A Dual Tech detector should not be suggested if we have any one of the above mentioned concerns at a site.