Model 405 Passive Infrared (PIR) Intrusion Sensor is an advanced stand-alone sensor specifically designed for outdoor intrusion detection applications. Two curtain-shaped sensing patterns detect intruders by sensing the temperature (heat radiation) difference between the background scene and that of the intruder.

Through the use of the latest detector and signal processing technology, Model 405 is able to operate in almost any environment. Two stage optical filtering and Adaptive Threshold Decoding (ATD) ensure reliable operation under changing environmental conditions. Nuisance alarms from rain, snow, wind, and fog are virtually eliminated.

Model 405 electronics and optics are housed in a rugged ABS enclosure. The universal mounting bracket allows mounting to flat surfaces or up to 4” (100 mm) O.D. posts.

An internally regulated heater prevents the optical mirror from clouding in cold weather. The heater is independent of the sensor electronics and operates from 12 volts AC or DC.

Set-up and adjustment are easy to accomplish. Simply aim the sensor slightly downward into the area that you wish to be protect, apply power and allow a few minutes for the sensor to establish a reference level for operation. Perform a walk test and adjust sensitivity to provide optimum detection.

Advanced Stand Alone Sensor Specifically Designed for Outdoor Intrusion Detection Applications

Features:

- Outdoor Intrusion Detection to 350 Feet (107 m)
- Well-Defined Narrow Field-of-View
- Two Stage Optical Filtering Blocks Unwanted Radiation from Sunlight and other High Intensity Light Sources
- Fixed or Portable/Tactical Operation
- Adaptive Threshold Decoding
- Non-Emitting Sensor
- Insensitive to Vibration, Wind, Rain, Fog, Snow or Temperature Extremes
Pattern
Model 405 provides a narrow, well-defined detection pattern with a maximum range of 350 feet (107 m) and a maximum width of seven feet (2.1 m). The detection pattern is actually comprised of two fields-of-view that establish a narrow curtain of coverage in the area to be protected. Vertical detection pattern is approximately 27 degrees, measured downward from the detector axis. Typical horizontal and vertical detection patterns are shown below.

Operation:
Model 405 detects intrusion by sensing temperature contrast between an intruder and the background environment. The intruder produces a temperature (heat radiation) change within the sensor’s field-of-view when moving through the detection pattern. The temperature contrast, as small as 1°C can generate an alarm. A precision mirror focuses the radiation onto a Parallel Opposed Dual (POD) pyroelectric detector element which will produce a signal from a moving target while canceling common mode signals received simultaneously by both sensing elements. Two stage optical filtering restricts the radiation to an 8-14 micron atmospheric “window” where humidity, fog, rain, and snow least affect the transmission of infrared radiation. Dual optical filtering attenuates unwanted radiation from sunlight and other high intensity infrared sources such as automobile headlights. To avoid unwanted detection of very large infrared heat sources such as trucks, trains, or aircraft outside the protected area, it may be necessary to aim the sensor slightly downward and away from the heat source of concern.

For detailed information on application, installation and adjustment, consult Model 405 Technical Manual.

Specifications:

Equipment Supplied Model 405 sensor and mounting bracket
Detection Range 350 feet (107m) typical for man/woman target
Detection Pattern Width and Height Varies with range, 1.5 feet (0.5 m) to 7.0 feet (2.1 m)
Detector Parallel Opposed Dual (POD) pyroelectric integrated sensor
Spectral Response 8-14 microns – double filtering
Target Size 0.8 square meter (man/woman) walking, running, or on hands and knees crawling. 0.2 square meter (prone crawling) target may be detected at shorter ranges with special site considerations.
Probability of Detection 0.99 minimum on 0.8 square meter target, based on equipment S/N ratio
Supply Voltage 10.5 to 28 VDC @ 30mA maximum
Heater Voltage 10.5 to 28 VDC @ 80mA (1 watt maximum)
Alarm Relay SPDT 0.25 amp @ 28 VDC
Tamper Switch SPDT 0.25 amp @ 28 VDC
Temperature Range -40°F to +140°F (-40°C to +60°C)
Weight 4.0 lbs. (1.8 kg)
Shipping Weight 7.0 lbs. (3.2 kg)