

## **Optex Incorporated**



1845 W. 205<sup>th</sup> St.  
Torrance, CA 90501-1510 USA  
TEL (310) 533-1500 and (800) 966-7839  
FAX (310) 533-5910

## **Description**

Doc: Architect/ Engineer Specifications  
Model: KX-08  
Desc: Ceiling Mount PIR Detector with Pet Immunity

*NOTE: Words/statements within square brackets [ ] may be included when appropriate, or when selection is required.*

The Intrusion Detector[s] shall operate on the Verified Intrusion principle using Passive Infrared (PIR), and shall be Listed by Underwriter's Laboratories, Inc..

### **OUTPUT AND ENCLOSURE**

[Each] [The] detector shall provide the detection, signal processing, alarm relay, and operating power circuitry in the same enclosure; and shall provide an alarm relay actuation upon the detection of an intruder moving into or through its protection pattern. The enclosure shall be ready for mounting to a ceiling without modification.

The total weight shall be 3.9 oz (111g).

[Each] [The] detector shall feature a single piece electronics board whose circuitry is specifically designed for this detector alone. The board shall be mounted to a housing with the cover being secured with a screw. A running test on every circuit board ensures that all circuit boards shall have sustained a substantial "Burn-in" test for many hours, prior to use. The case shall include easy wiring knockouts.

### **LED OPERATION**

The detector[s] shall incorporate a single, Red LED to indicate the operating conditions. Red LED illuminated shall indicate an alarm condition. Red LED not illuminated shall indicate a non-alarm condition. The LED Alarm Indicator shall be optional; it shall be capable of being field disabled using an On/Off pin switch.

### **POWER REQUIREMENT**

The detector[s] shall be capable of operating from a DC power source rated within the range of 9.6 to 16 volts DC, and shall draw a maximum of 17 milli-amps (mA) at 12 volts DC.

### **ALARM OPERATION**

A condition of alarm shall occur when the PIR alarm conditions are met. The Sensitivity shall be 3.6°F (2°C) at 2ft/sec. (0.6m/sec.). The Detectable Speed shall be 1 ~ 5 ft/sec. (0.3 ~ 1.5m/sec.). The Alarm Period shall be approximately 2.5 seconds. The Alarm Output shall be capable of handling 28VDC, 0.2A max, N.C.. The pulse count shall be 20 sec., and shall allow for a selection mode of 2, or 4 triggers to initiate an alarm output. [Each] [The] detector shall signal the condition of alarm using a Normally Closed Reed Relay with terminal strip connections. The detector[s] shall also contain a tamper switch that shall open when the cover is removed.

To accomplish PIR detection, [each] [the] detector shall contain a sealed Pyro-Electric sensor peaked for the detection of near-infrared energy in the 10 micron region.

### **SENSOR STABILITY**

The PIR detection shall use Quad Zone Logic Signal Processing. Quad Zone Logic provides multi segmented detection zones over the detection area. An alarm signal shall be created by the cumulated total IR energy of each zone. It is designed so that

a human size target will normally fill 4 to 8 zones, and this shall cause an alarm to be generated. Any smaller temperature change (i.e. small to medium size pets, rodents or moving curtains) shall only activate one or two zones at the same time, creating a much weaker detection signal. Pet immunity shall apply to animals and/or rodents 0 to 16 inches in height.

These signals shall be further analyzed by the "ECO" chip and signal processing circuit for accurate detection of humans and avoidance of most small animals. Temperature Compensation Logic shall be the primary functionality of the "ECO" chip. This temperature compensation circuit shall control sensitivity to improve stability against changes in environmental conditions.

To guard against false activations caused by RF interference, the detector shall incorporate RFI Protection capability. The logic built into this noise-reduction circuitry shall allow the sensor chip to cancel 50% of all popcorn noise. No alarm shall occur at 20V/m from the range of 100MHz to 1.2GHz.

Temperature Compensation Circuitry shall also increase detection capability under high temperature conditions where the background temperature is similar to that of the human body. The patented multi-focus lens creates zones with high vertical density, providing maximum detection sensibility that shall remain stable even in these high temperature conditions. [Each] [The] detector shall be rated to operate

within the temperature range of [minus 4° Fahrenheit to plus 122° Fahrenheit] [minus 20° Celsius to plus 50° Celsius]. [Each] [The] detector shall also tolerate an environmental humidity rate of 95% max. No false alarm shall occur within these operating conditions.

To ensure proper circuit operation, the detector[s] shall incorporate a PIR self-test with defaults. When the device is turned on, the warm-up period shall be approx. 30 seconds, during which time the LED blinks.

### **LENS AND DETECTION PATTERN**

[Each] [The] detector shall contain a hard and durable spherical Fresnel lens that shall focus received infrared energy onto the sensor. The precision with which this lens is designed shall enable the detector[s] to obtain an accurate focal length for each detection zone, and to maximize the performance of Quad Zone Logic. The sensor and module combined shall construct a coverage pattern of Wide: 25ft x 25ft, 85° Wide, with 78 zones of detection.

The detector[s] shall mount to a ceiling at a height of 8ft (2.44m).

### **MODEL**

The Intrusion Detector shall be model KX-08 (Ceiling Mount Passive Infrared Detector with Pet Immunity).