IntegrAlarm USER AND INSTALLER MANUAL
(PASSIVE INFRARED DETECTOR)
IntegrAlarm MODEL IA-PIR 1

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1 IntegrAlarm Overview

The IntegrAlarm wireless security system includes a Control Panel and a number of wireless peripheral units. The system operates on the ISM wireless band of 902-928 MHz, in frequency hopping mode, transmitting short (about 10 ms) packets of data, with each packet transmitted on a different frequency. Time and frequency synchronization is maintained by a synchronization signal transmitted by the system Control Panel to the various peripherals (including the IA-PIR 1) every 3 minutes. The system operates on 56 pseudo random selected channels.

In its present configuration, the system includes five types of peripheral units:

- Door / window sensor.
- Passive infrared detector.
- Smoke detector.
- Handheld remote control.
- Remote siren.

This manual is devoted to the installation instructions for the IntegrAlarm IA-PIR 1 passive infrared detector.

The installation instructions for the other IntegrAlarm peripherals and the IntegrAlarm Control Panel appear in the User and Installer Manuals for the respective units.

FCC Compliance Statement

The FCC Wants You to Know

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

a) Reorient or relocate the receiving antenna.
b) Increase the separation between the equipment and receiver.
c) Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
d) Consult the dealer or an experienced radio technician.

FCC ID: RUF150703

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference and

(2) This device must accept any interference received, including interference that may cause undesired operation.

FCC Warning

Modifications not expressly approved by the manufacturer could void the user authority to operate the equipment under FCC Rules.

Instructions concerning human exposure to radio frequency electromagnetic fields.

To comply with FCC Section 1.307 (b)(1) for human exposure to radio frequency electromagnetic fields, implement the following instruction:

A distance of at least 20cm. between the equipment and all persons should be maintained during the operation of the equipment.

2 Passive Infrared Detector

2.1 Description

The PIR detector unit consists of a PIR sensor and circuitry, an RF transceiver, a micro-controller, a non-volatile memory, a power supply, a tamper switch, a test switch and a 3V Lithium HNO_2 battery type 123.

The sensor unit is composed of the following principal parts:

- Mounting plate.
- Sensor PCB assembly with RF controller PCB, LED and battery.
- Inner cover.
- Outer cover with IR motion lens.

An exploded view of the PIR sensor unit is shown in Figure 1 below.

To reduce false alarms, the PIR is pet-immune and has a selectable alarm threshold (1, 2 or 3 movements in the protected space). Once an alarm has been transmitted, the PIR shuts down for a minimum of 2 minutes. After 2 minutes, the PIR will automatically be rearmed, provided that movement within the protected space has ceased and not resumed.

Depending on the space to be protected, the PIR has either a wide-angle lens, with a 70° viewing angle and a maximum range of 15 m, or a long-range lens, with a 9° viewing angle and a maximum range of 21 m. (The standard lens supplied is the wide-angle lens.) A diagram of the lens coverage appears in Figure 2 below.

2.2 Technical Specifications

Operating frequency band – ISM 902-928 MHz.

Mode of operation – frequency hopping; every data packet is transmitted on a different pseudo random selected frequency.

Data packet transmission duration – less than 7 milliseconds.

Data packet validity check – CRC.

Transmission and reception verification – two-way communication; each received packet is acknowledged, with an automatic repeat request (ARQ) in case of unacknowledged data packet.

IR detector sensitivity – Δ 1.6 deg. @ 0.6 m/sec.

Movement speed range – 0.3 to 1.5 m/sec.

Detection field of view @ maximum range with WA lens – 21 m @ 15 m range *.

Detection field of view @ maximum range with LR lens – 3.5 m @ 21 m range *.

Events reported – movement in room, tamper.

Automatic self-test (transmission of a data packet and receipt of acknowledgment).

Power source – 3V Lithium MNO_2 battery type 123.

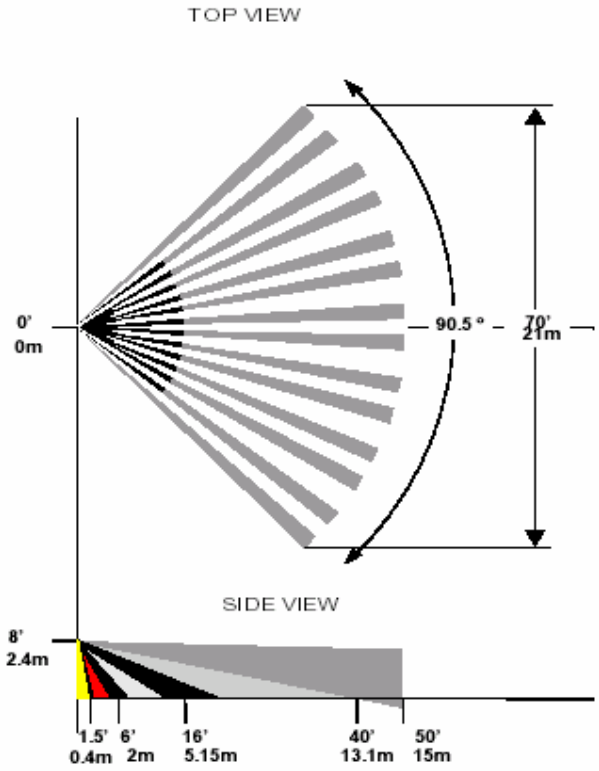
Average current drain in normal use – 23 uA

Current drain in “no movement” state – 15 uA

* See IR detection pattern on following pages.

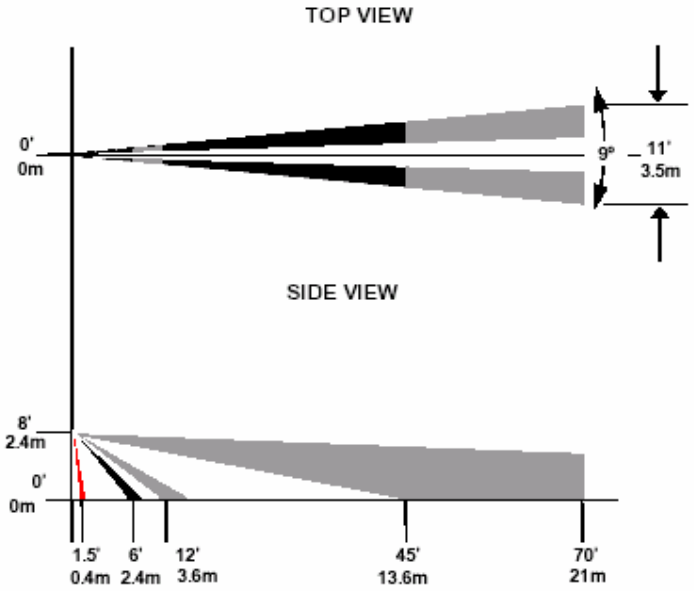
WA LENS PATTERN

WIDE ANGLE LENS



LR LENS PATTERN

LONG RANGE
LENS



2.3 Installation

Installation of each PIR sensor is a three-stage process. The sensor should first be registered via the IntegrAlarm Control Panel. It should then be mounted on the wall of the space to be secured, and then tested to confirm that it operates properly.

2.3.1 Registration

From Installer Menu on Control Panel, select ENROLL. Screen will show:

ENTER ZONE #

Use numeric keypad at right of Control Panel to enter the desired zone number. The description of the zone number (e.g. MASTER BEDROOM) will appear at bottom of screen. If zone description is correct, press OK at left of Control Panel. Screen will show:

PLEASE POWER UP THE ZONE

Insert battery. Sensor will begin to transmit. If Control Panel does not identify sensor, screen will show:

ZONE NOT FOUND

If Control Panel identifies sensor, Control Panel will emit an audible beep and screen will show:

S/N: XXXXXX TYPE: YYYY

where XXXXX is the sensor serial number and YYYY is PIR. Ensure that the serial number displayed corresponds to the serial number of the sensor and press OK at left of Control Panel. Screen will show:

ACCEPT ZONE DATA NO YES

Press OK at left of Control Panel.

System will update zone enable parameters, sensor serial number and type, and mode of operation (A, B or C).

2.3.2 Mounting

Remove the PIR sensor from its package. Ensure that all of the components listed in Section 2.1 above are present.

Normally, the PIR sensor will be already assembled and will only require attachment by means of four screws in an upper corner of the room, near the ceiling, as shown in Figure 1 above. (Allow 2-3 cm space to enable changing the battery.)

If the PIR sensor is not already assembled:

First, attach the mounting plate by means of four screws in an upper corner of the room, near the ceiling. (Allow 2-3 cm space to enable changing the battery.)

When the mounting plate is in place, insert the sensor PCB and battery into the inner cover and attach the inner cover to the mounting plate (taking care to insert the anti-tamper stud of the mounting plate through the slot in the inner cover).

When the sensor PCB and inner cover are in place, assemble the translucent insert and lens into the outer cover and attach the outer cover.

Insert the battery.

2.3.3 Testing

When the PIR sensor has been registered and installed, test it by first neutralizing the time delay with a magnet and then moving about in the secured space several times. Each time, ensure that the LED first flashes red (indicating transmission to the Control Panel) and then green (indicating receipt of ACK response from the Control Panel).