

IntegrAlarm USER AND INSTALLER MANUAL
(SMOKE DETECTOR)
IntegrAlarm MODEL IA-SMK1

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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 5 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 SMK-1) every 3 minutes. The system operates on 138 pseudo random selected channels.

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

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

This manual is devoted to the installation instructions for the IntegrAlarm IA SMK-1 smoke 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: RUF150705

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 Smoke Detector

2.1 Description

The UL-approved smoke detector sensor unit consists of an RF transceiver, a micro-controller, a photoelectric smoke detector cell with processing ASIC, a test button, a buzzer and two batteries.

The sensor unit is composed of the following principal parts:

- Mounting plate.
- Sensor base.
- Sensor PCB with RF controller, terminal block, test button, buzzer and LED.
- 9V alkaline battery type 1604.
- 3V Lithium HNO₂ battery type CR2
- Cover.

An exploded view of the smoke detector is shown in Figure 1 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.

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

Events reported – smoke detected, smoke cleared.

Smoke detector sensitivity – $3 \pm 0.7\%$ / ft.

Smoke detector UL compliance – UL 217.

Power source – Smoke detector battery – alkaline, 9Volt, type 1604.

Wireless transceiver/controller battery - Lithium MNO₂, 3Volt type CR2.

Smoke detector average current drain – 10 uA

Transceiver average current drain – 5 uA.

Operating temperature range – 0°C to 45°C.

Dimensions (mm): Ø-116, H-60.

Weight (grams): 270.

2.3 Installation

Installation of each smoke detector is a three-step procedure. The sensor should first be registered via the IntegrAlarm Control Panel. It should then be mounted on the door or window 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 batteries. 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 SMOKE. 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 smoke detector from its package. Select and mark the location on the ceiling, near the center of the room, where the smoke detector is to be installed.

Note: Do not install the smoke detector near appliances where normal combustion regularly occurs, in areas with high humidity or turbulent air, or in extremely dusty, dirty or insect-infested areas.

Before mounting the smoke detector, it is necessary to ensure that all of the components listed in Section 2.1 above are present and in good order. Disassemble the sensor assembly and perform a visual inspection.

Write down the serial number from sensor base on a piece of paper for use in the registration process as set forth in Section 2.3.2 below. Now, using two screws, attach the mounting plate to the ceiling in the marked location as shown in Figure 1 below.

When the mounting plate is in place, take the sensor PCB and batteries to the Control Panel and perform the registration process as set forth in Section 2.3.2 below.

Now return to the site where the sensor is to be installed. Insert the sensor batteries into the sensor base and attach the cover. Ensure that the LED can be seen through the hole in the cover.

Twist the cover into place $\frac{1}{2}$ turn clockwise.

2.3.3 Testing

When the smoke detector has been registered and installed, test it by pressing the test button on the cover until the alarm sounds, then release. The alarm sounds if all electronic circuitry, buzzer and battery are working. The alarm may continue to sound for up to 10 seconds after the button is released.

