IRIS

Industrial Environment PIR Detector

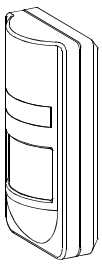
Visonic Ltd

Installation Instructions

1. INTRODUCTION

The elegant IRIS is ruggedly constructed and is designed for industrial and residential applications. The printed circuit board is completely sealed inside an electronic magazine (EM), which protects the pyroelectric sensor and the P.C. board against insects, drafts, mechanical damage etc. A temperature stabilizing circuit automatically stabilizes the detection range at all operating temperatures. The unit can be surface or corner mounted. An optional PIR mounting bracket (BR-1) is also available. IRIS offers a choice of four interchangeable lenses: wide angle, long range, ultra-wide angle and pet alley.

A programmable pulse counter gives additional protection against all types of environmental disturbances. User friendly design includes installation aids to enable the precise positioning at the height you want.



2. SPECIFICATIONS

OPTICAL

Detection Patterns: Four detection patterns are available.
LENS-A: 90° Wide Angle. Provides 34 beams in 3 detection layers with maximum coverage area of 15 m x 15 m (50 ft x 50 ft).
LENS-B: Long Range. Provides narrow angle corridor pattern with maximum coverage area of 3 m x 27 m (10 ft x 90 ft).
LENS-C: 145° Ultra-Wide Angle. Provides 34 beams in 3 detection layers with maximum coverage area of 13.5 m x 18 m (45 ft x 60 ft).
LENS-D: 90° Pet Alley. Provides 14 beams in a single layer with maximum coverage area of 15 m x 15 m (50 ft x 50 ft).
Adjustment: Vertical 0° to –12° calibrated scale. Horizontal ±7.5°. Greater angles are possible when using the optional BR-1 PIR mounting bracket.

ELECTRICAL

Voltage: 9.5 to 15.5 VDC.
Current: 17 mA.
Alarm Output: Normally closed (fail-safe) contacts, 18 ohm resistor in series with contacts. Rating 0.1A resistive/24 VDC.
Tamper Output: Normally closed. Rating 0.1A resistive/24 VDC.
Alarm Period: 3-5 seconds.
Pulse Counter: 2 position selector, 1 or 3 pulse operation.
LED: Enabled or disabled with a switch.
Detector: Dual-element low noise pyroelectric detector.

MOUNTING

Flat or corner mounting (without additional brackets).
Mounting Height: Up to 3.6 m (12 ft).
Optional Mounting Accessories:
BR-1: universal swivel bracket, adjustable 30° downward and 45° left, 45° right.
BR-2: same as BR-1, with corner adapter.
BR-3: same as BR-1, with ceiling adapter.

ENVIRONMENTAL

Operating Temperature:–10°C to 50°C (14°F to 122°F).
Storage Temperature: –20°C to 60°C (–4°F to 140°F).
RFI Protection: > 20V/m to 1000 MHz.

PHYSICAL

Dimensions: 60 x 116 x 35 mm, (2.4 x 4.5 x 1.4 in).
Weight: 103 g (3.6 oz).
Color: White

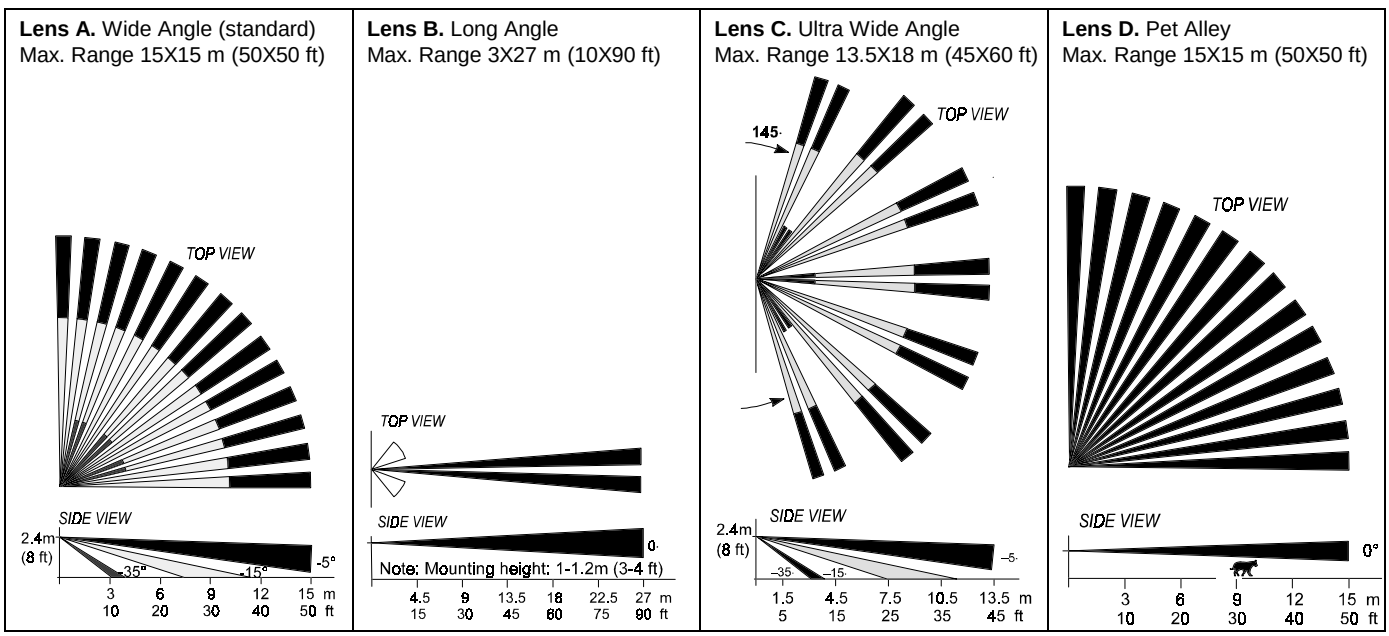


Figure 1. *Coverage Patterns*

3. INSTALLATION

3.1 Changing Lenses

To change or adjust a lens: insert a small screwdriver into the lens holder upper locking tab and rotate the screwdriver handle upward. The lens holder will release (Fig. 2 and 3).

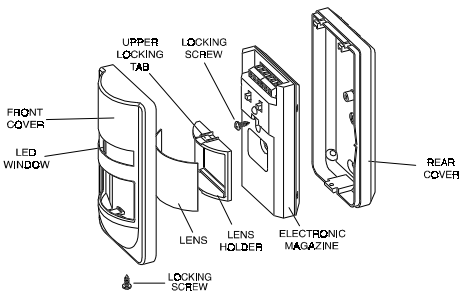


Figure 2. *IRIS Construction and Assembly*

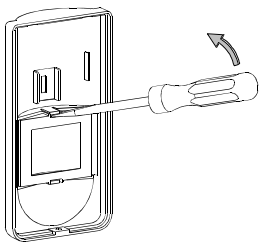


Figure 3*. Removing the lens holder*

Insert the new lens with the smooth surface outside and the lens designation letter in the upper right corner. From inside the cover, carefully center the lens by sliding it to the right or left.
The lens is centered when the distance from the side edge to the edge of the cover is the same on each side of the cover. Holding firmly in place, install the lens holder, pushing it toward the cover until a click is heard.

3.2 Selecting Mounting Location

IRIS can be installed directly on a wall (surface mounted) or in a corner. Always mount the unit on a firm and stable surface.

A. Select the mounting location so that the expected motion of an intruder will cross the beams of the coverage pattern.

NOTE: *Passive infrared detectors are sensitive to changes in infrared energy, caused by an object moving across the unit's field of view. Since the changes in infrared energy, detected by a PIR, depend on the amount of infrared energy transmitted by the moving object and the temperature difference between the object and the background, the PIR may fail to respond under certain temperature and background conditions, in which the temperature difference is too small. It is therefore recommended that the PIR be aimed toward the coolest place in the protected area, in order to obtain the maximum sensitivity in installations where high ambient temperatures are expected.*

B. Select the most convenient mounting height.

NOTE: *Built in installation aids enable you to mount the unit anywhere, up to 3.6 m (12 ft.) A vertical adjustment table gives the recommended scale setting for combinations of coverage range and mounting height (see Table 1).*

C. Where pets are present, consider using lens D, Pet Alley. Install the unit at the lowest possible height that enables directing of the pattern about one foot above the pets activity.

D. IRIS is extremely immune to air turbulence and RFI interference. However, to minimize false alarms, it is highly recommended to avoid aiming the detector at heaters, sources of bright light, or windows that are subjected to direct sunlight. Also avoid running wiring close to high-power electrical cables.

3.3 Mounting

A. To open the front cover, remove the screw located at the bottom of the unit. Place your fingers toward the bottom of the front cover, separate and remove it from the back cover.

B. Remove the electronic magazine from the rear cover by removing the locking screw (see Figure 2).

C. Mount the rear cover (with the screw hole facing down), in the location and height selected for optimum coverage. For surface mounting use the two knockouts at the back of the base. For corner mounting use the knockouts on the angled sides. The unit must be fastened firmly to the mounting surface to avoid possible vibrations.

D. Optional Mounting Brackets

The **BR-1** is a swivel, surface-mounted bracket which accommodates the IRIS and offers extensive aiming possibilities. It is adjustable as shown in Figure 4.

The **BR-2** is a swivel bracket kit that consists of the BR-1 and a corner mounting adapter.

The **BR-3** is a swivel bracket kit that consists of the BR-1 and a ceiling mounting adapter.

Attention: with swivel brackets in use, the effective detection range may differ from that indicated in Table 1 - the vertical adjustment scale.

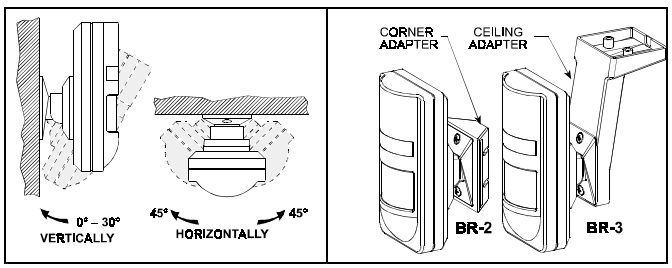


Figure 4. *BR-1 Adjustment Range*

3.4 Wiring

A. Reinstall the electronic magazine into the rear cover. Loosen the PCB locking screw slightly and slide the PCB downward in order to expose the wiring knockouts (see figure 5).

B. Using #22 AWG or larger wires, connect the wiring to the terminal block in the following order. Refer to Figure 6.

C. Connect the **TAMP** N.C terminals to a normally. Closed 24-hour protection zone of the control panel. Tamper contact will open when the cover is removed.

D. Connect the **RELAY** N.C. terminals to a normally closed burglar protection zone of the control panel. Relay contacts will open when motion is detected or during power loss.

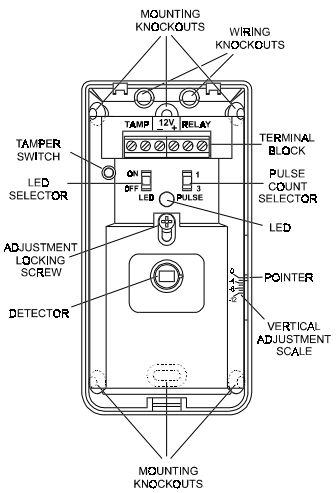


Figure 5*. IRIS Layout*

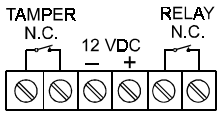


Figure 6. *Terminal Block Wiring*

E. Connect the **12VDC (+)** and **(–)** terminals to a 9.5 – 15.5 VDC power source and check for correct polarity. It is mandatory that the power supply have at least 4 hours of battery back-up. Current drain of each sensor is approximately 17 mA.

3.5 Adjusting the Coverage Area

IRIS provides you with the most powerful tools for quick, easy and accurate pattern adjustments.

The dual-mode LED selector, horizontal adjustment, vertical calibrated scale, height selection table and BR-1 mounting bracket (optional), are all unique features which enable precise pinpointing of the pattern, both vertically and horizontally.

Dual-Mode LED Selector

The LED switch selector has two operating modes (see Fig. 5).

A. **ON** - This mode is used for walk-testing. The LED lights for a few seconds, whenever motion is detected.

B. **OFF** - This mode can be used to disable the LED after all testing is completed, to prevent unauthorized persons from tracing the coverage pattern.

Horizontal Adjustment

The coverage pattern can be adjusted horizontally approximately ±7.5° by rotating the lens to the left or right. To adjust, remove the lens holder (see Figure 3), rotate the lens to the desired position and replace the lens holder to fix the lens in place.

Vertical Adjustment Scale

The vertical adjustment scale (printed on the right side of the electronic magazine) and the plastic pointer on the base, indicate in degrees, the approximate vertical angle between the horizontal line of the unit and the upper detection beams.

Table 1 gives the recommended scale adjustment settings for various combinations of mounting height and coverage distance.

Table 1. *Vertical Adjustment Scale*

Mounting Height		Coverage Range											
ft ⇒		7	10	13	17	20	23	26	30	40	50	60	90
⇓	m	2	3	4	5	6	7	8	9	12	15	18	27
3	1	0°	0°	0°	0°	0°	0°	0°	0°	0°	0°	0°	0°
4	1.2	-8°	-6°	-5°	-4°	-3°	-2°	-2°	-2°	-1°	-1°	-1°	0°
5	1.5	–	-12°	-9°	-7°	-6°	-5°	-5°	-4°	-3°	-2°	-2°	-1°
6	1.8	–	–	–	-11°	-9°	-8°	-7°	-6°	-5°	-4°	-3°	-2°
7	2	–	–	–	–	-12°	-10°	-9°	-8°	-6°	-5°	-4°	-3°
8	2.5	–	–	–	–	–	–	-11°	-10°	-7°	-6°	-5°	-3°
10	3	–	–	–	–	–	–	–	–	-10°	-9°	-7°	-4°
12	3.6	–	–		–	–	–	–	–	-12°	-10°	-8°	-6°

Example: If you require coverage range of 40 ft (12 m) and wish to install the sensor at a height of 6 ft (1.8 m) from the ground, set the Vertical Adjustment Scale to -5°.

The scale enables fast, easy pattern adjustment from 0° to –12° down-ward according to the installation height and the required coverage range. IRIS sensors are factory preset to –4°. To change the vertical pattern adjustment, loosen the screw that fastens the electronic magazine to the rear cover. Slide the electronic magazine up or down to the desired angle and tighten the screw firmly.

Beam Masking Material

Special beam masking material is supplied with each IRIS detector. It can be used to mask individual segments in the lens array which are exposed to potential sources of false alarm (heaters, blowers, pets, etc.). The material is transparent to visible light but blocks any infrared energy. To block individual beam(s), locate the corresponding segment(s) in the array. Cut the masking material to the exact dimensions of the segment(s) to be blocked, remove the backing paper and apply the masking material accurately to the inside (rough) surface of the appropriate segment(s). In some cases, more than one layer of lens masking material may be required to completely block the infrared energy.

3.6 Pulse Counter

IRIS PIR is equipped with a programmable pulse counter which can be set to count 1 or 3 pulses, before activating the alarm relay. To set the pulse counter, place the switch to the desired setting.

3 Pulses. This setting provides the maximum protection against false alarms caused by all types of environmental disturbances.

NOTE: *Do not select 3 pulse operation when using the long-range lens . When the pulse counter is set to 3, no alarm will occur unless the unit registers three pulses within approximately one minute. This ordinarily requires crossing more than one beam. (Each dual-beam produces two pulses. One additional beam element is needed to provide the third pulse).*

1 Pulse. This setting actually disables the pulse counter. It should be used when it is necessary to activate an alarm on the first detected pulse, such as with the long-range lens. One pulse should be selected when using the long-range lens, or in high security installations, when fast 'catch' performance is of greatest importance.

3.7 Walk Testing

A. Apply 12 VDC power and allow five minutes for the unit to warm up and stabilize before testing.

B. Adjust the vertical pattern angle according to Table 1.

C. Set the pulse counter per Section 3.6 above.

D. Make sure that the LED selector is set to ON (Fig. 5).

E. Walk-test the range and coverage area by walking slowly across the field of view (in opposite directions) and observe the LED. The LED lights up whenever you enter or exit a sensitive beam. Allow 5 seconds between each test for the unit to stabilize.

F. After testing, the LED can be disabled to prevent unauthorized persons from tracing the coverage pattern. To disable the LED, set the LED selector to OFF.

NOTE: *The range and coverage area should be checked at least once a year. To assure proper continuous functioning, the user should be instructed to perform a walk test at the far end of the coverage pattern to assure an alarm signal prior to each time the alarm system is armed.*

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