JET

Passive Infra Red Detector

Visonic Ltd

Installation Instructions

1. INTRODUCTION

The JET is a highly compact passive infrared detector designed for top-notch performance and high immunity against false alarms. It can be surface-mounted or corner-mounted, and has a soft-featured, streamlined shape that blends into most interior decors.

The JET is especially notable for its dual creep zone lens with 4 beams and also for its efficient temperature compensation circuitry, incorporated to stabilize the detection range over a wide range of operating temperatures. The pyroelectric sensor of the JET is enclosed in a sealed chamber, protected from insects and air drafts. Four lenses are available, for a variety of residential and commercial applications.

The appropriate lens for each application must be selected according to the area to be covered. The coverage patterns are shown in Figure 1.

2. SPECIFICATIONS

OPTICAL

Detection Patterns (Figure 1):
Lens A - 90° Wide Angle: Provides 34 beams in 3 detection layers with maximum coverage area of 50 x 50 ft (15 x 15 m).
Lens B - Long Range: Provides narrow angle corridor pattern with maximum coverage area of 10 x 90 ft (3 x 27 m).
***Lens C - 145° Ultra-Wide Angle*:** Provides 34 beams in 3 detection layers with maximum coverage area of 45 x 60 ft (13.5 x 18 m).
Lens D - 90° Pet Alley: Provides 14 beams in a single layer with maximum coverage area of 50 x 50 ft (15 x 15 m).
Adjustment: Vertical +2° to -12° calibrated scale.
Creep Zones: Two look-down creep zone lenses provide 4 creep zone beams.

ELECTRICAL
Voltage: 9 to 16 VDC.
Current: 17 mA at 12 VDC, 21 mA at 16 VDC.
Alarm Output: Normally closed (fail-safe) contacts. 18-ohm resistor in series with contacts. Rating - 0.1 A resistive/24 VDC.
Tamper Output: Normally closed. Rating 50 mA resistive/24VDC.
Alarm Period: 2-3 seconds.
Pulse Counter: 2 position selector, 1 or 3 pulse operation.
LED: Walk Test, enabled or disabled with internal link.
Detector: Dual-element low noise pyroelectric sensor.

MOUNTING
Flat or corner mounting (no additional brackets required).
Mounting Height: Up to 12 ft (3.6 m).
BR-1: Swivel mounting bracket (optional), vertically adjustable 30° downward. Horizontally adjustable 45° left, 45° right.
BR-2: A corner mounting kit consisting of the BR-1 and a special corner adapter.
BR-3: A ceiling mounting kit consisting of the BR-1 and a special 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: Greater than 30V/m to 1000 MHz.

PHYSICAL
Dimensions: 110 x 45 x 34 mm (4-5/16 x 1-3/4 x 1-5/16 in.).
Weight: 68 grams (2.4 ounces).
Color: White.

MODELS AVAILABLE
JET: Standard model
JET M: With memory (not U.L. listed)
JET VDS: With memory and remote LED control (not U.L. listed).

PATENTS
U.S. Patent: Des. 356,748

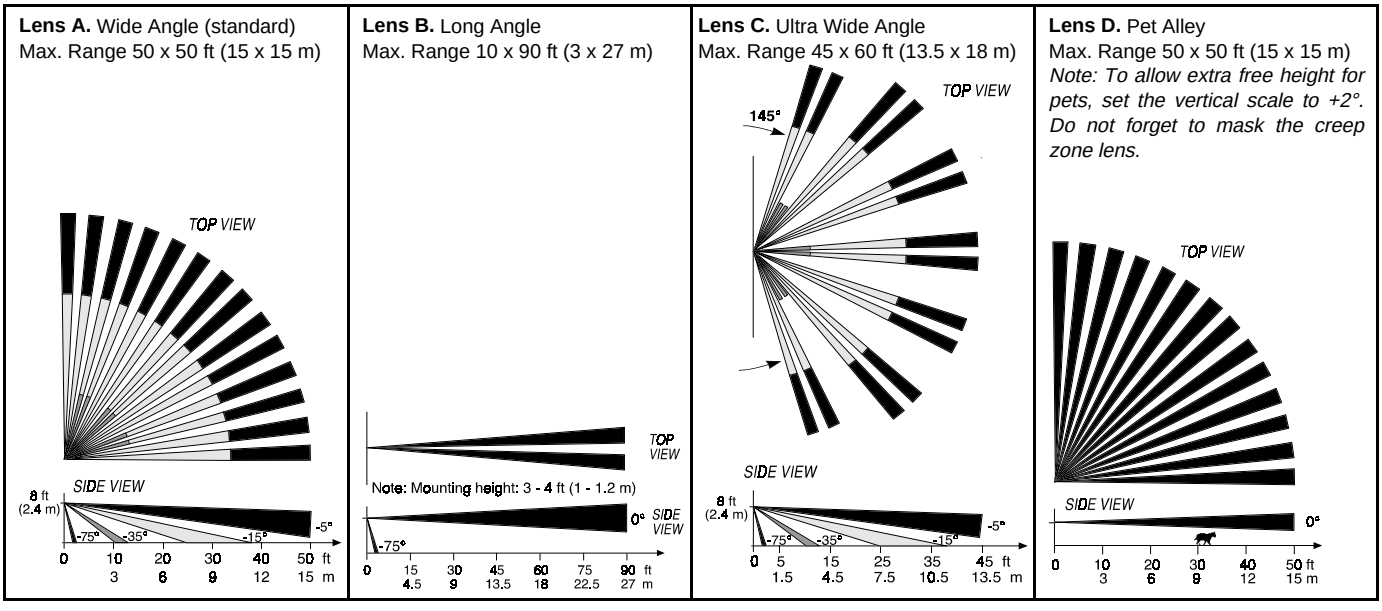

Figure 1. *JET Coverage Patterns*

3. INSTALLATION

3.1 Changing Lenses

To change a lens, refer to Figure 2 and proceed as follows:

A. Remove the screw at the bottom. Pull the lower part of the cover slightly forward and remove the cover.

B. Hold the lens cover in both hands with the creep zone lens away from you.

C. Flex the edge of the cover near the lens holder sideways with one thumb, while inserting the other thumb into the sensor enclosure and pressing in the opposite direction. Once the lens holder snaps free of one side-locking tab, it will remove easily.

D. Release and remove the old lens by bending one of its side edges slightly inward with a small screwdriver.

E. Insert the new lens with the smooth surface outside and the lens designation letter positioned as in Fig. 2. Push the lens in until it snaps into place.

F. Position the lens holder correctly and insert its left edge under the left side-locking tab. Then push the right edge in until it snaps into place.

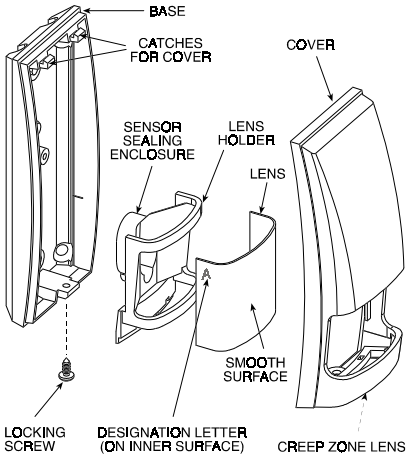

Figure 2. *Cover and Lens Assembly*

3.2 Mounting

The JET PIR can be installed directly on a wall (surface mounted) or in a corner. Optional swivel brackets (BR-1, BR-2 and BR-3) are also available – see Para. 3.3 and Figure 3.

Position the unit with the creep zone lens facing down. The main lens will thus be located in the lower part of the front cover. Always mount the unit on a firm and stable surface. It is recommended to seal the wire entry holes with RTV once the wiring has been completed.

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

B. Select the most convenient mounting height. Built-in installation aids enable you to mount the unit anywhere up to 12 ft (3.6 m) height. An accurate adjustment table provides the recommended vertical adjustment with respect to detection range and mounting height (see Section 3.5).

> ***Note:*** *When using the pet alley lens, the detector should be mounted at the height of 4-4.5 ft (1.2-1.35 m) – at least 1 ft (30 cm) above the pet's activity – with the scale set to +2°, and the creep zone lens masked to prevent detection.*

C. The JET is extremely immune to RF and to air turbulence. However, to minimize possible false alarms, it is highly recommended to avoid aiming the detector at heaters, sources of light, or windows subjected to direct sunlight. Also avoid running wiring close to high power electrical cables.

D. Remove the front cover, as explained in Para. 3.1, Step A.

E. Mount the base (equipped with the printed circuit board) 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 (see Figure 5).

3.3 Swivel Mounting Brackets (optional)

The BR-1 is a swivel, surface-mounted bracket which accommodates the JET for greater flexibility when setting the desired detection range. The BR-1 is adjustable 30° downward and 45° left, 45° right (see Figure 3).

The BR-2 is a swivel bracket kit for installation in room corners. It consists of the BR-1 and a corner mounting adapter.

The BR-3 is a swivel bracket kit for installation on ceilings. It 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 adjusting scale.

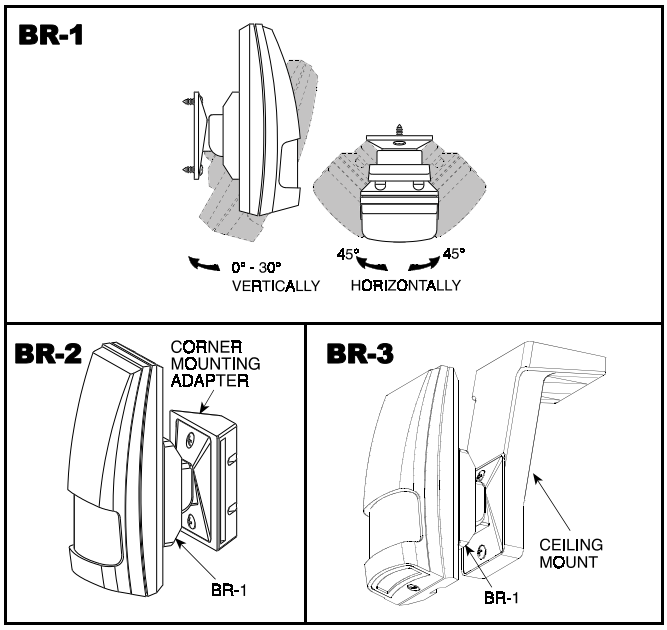

Figure 3. *Swivel Brackets BR-1, BR-2 and BR-3*

3.4 Wiring (Refer to Figure 4)

Route the wires through the wiring knockouts at the top part of the base. Connect wires to the terminal block in the following order.

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

B. Connect the **N.C.** (relay) terminals to a normally closed burglar zone of the control panel. The relay contacts open if motion is detected or during a power loss.

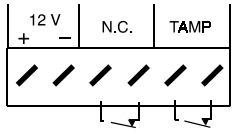

Figure 4. *Terminal Block Wiring*

For installations in Canada, the N.C. relay must be connected to an end-of-line resistor supervised zone.

C. Connect the **12V (+)** and **(–)** terminals to a 9 to 16 Volt DC power source and check for correct polarity. It is mandatory that the power supply have at least 4 hours of battery back-up. The current drain of each sensor is about 17 mA.

3.5 Vertical Adjustment

The vertical adjustment scale (printed on the lower right side of the p.c. board – see Fig. 5) 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 layer.

Table 1 gives recommended scale settings for various combinations of mounting height and coverage distance. The scale enables fast, easy pattern adjustment from +2° to -12° downward according to the installation height and the required coverage range.

JET sensors are factory preset to -4°. To change the vertical pattern adjustment, loosen the screw which fastens the printed circuit board to the base. Slide the p.c. board up or down to the desired angle and tighten the screw firmly.

***Note**: in pet alley installations (lens D), the scale must be set to +2°.*

***Table 1** - Vertical Adjusting 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°.

3.6 The Pulse Counter

Model JET is equipped with a programmable pulse counter (see Figure. 5), which can be set to count 1 or 3 pulses before activating the alarm relay. To set the pulse counter, place the jumper at the desired setting (1 or 3).

Three Pulses: This setting provides improved protection against false alarms caused by all types of environmental disturbances. Three pulses should be used with wide angle, multi-beam lenses only.

One 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, or in high security installations, when fast "catch" performance is of greatest importance.

***One pulse must be used with lens B - the long-range lens**.*

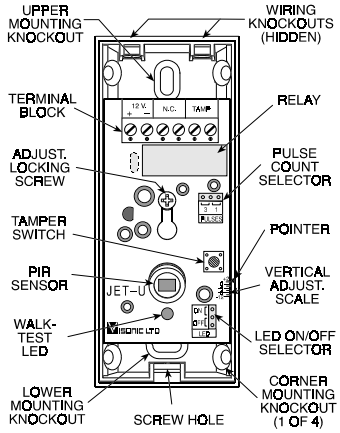

***Figure 5.** Inside View of the JET*

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

D. 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.

E. After testing, the LED can be disabled to prevent unauthorized persons from tracing the coverage pattern. To disable the LED, remove the jumper marked LED from the ON position and place it at OFF.

***NOTE:** The range and coverage area should be checked at least once a year by the installer. 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.*

WARRANTY

Visonic Ltd. and/or its subsidiaries and its affiliates ("the Manufacturer") warrants its products hereinafter referred to as "the Product" or "Products" to be in conformance with its own plans and specifications and to be free of defects in materials and workmanship under normal use and service for a period of twelve months from the date of shipment by the Manufacturer. The Manufacturer's obligations shall be limited within the warranty period, at its option, to repair or replace the product or any part thereof. The Manufacturer shall not be responsible for dismantling and/or reinstallation charges. To exercise the warranty the product must be returned to the Manufacturer freight prepaid and insured.

***This warranty does not apply in the following cases:** improper installation, misuse, failure to follow installation and operating instructions, alteration, abuse, accident or tampering, and repair by anyone other than the Manufacturer.*

This warranty is exclusive and expressly in lieu of all other warranties, obligations or liabilities, whether written, oral, express or implied, including any warranty of merchantability or fitness for a particular purpose, or otherwise. In no case shall the Manufacturer be liable to anyone for any consequential or incidental damages for breach of this warranty or any other warranties whatsoever, as aforesaid.

This warranty shall not be modified, varied or extended, and the Manufacturer does not authorize any person to act on its behalf in the modification, variation or extension of this warranty. This warranty shall apply to the Product only. All products, accessories or attachments of others used in conjunction with the Product, including batteries, shall be covered solely by their own warranty, if any. The Manufacturer shall not be liable for any damage or loss whatsoever, whether directly, indirectly, incidentally, consequentially or otherwise, caused by the malfunction of the Product due to products, accessories, or attachments of others, including batteries, used in conjunction with the Products.

The Manufacturer does not represent that its Product may not be compromised and/or circumvented, or that the Product will prevent any death, personal and/or bodily injury and/or damage to property resulting from burglary, robbery, fire or otherwise, or that the Product will in all cases provide adequate warning or protection. User understands that a properly installed and maintained alarm may only reduce the risk of events such as burglary, robbery, and fire without warning, but it is not insurance or a guarantee that such will not occur or that there will be no death, personal damage and/or damage to property as a result.

***The Manufacturer shall have no liability for any death, personal and/or bodily injury and/or damage to property or other loss whether direct, indirect, incidental, consequential or otherwise, based on a claim that the Product failed to function.** However, if the Manufacturer is held liable, whether directly or indirectly, for any loss or damage arising under this limited warranty or otherwise, regardless of cause or origin, the Manufacturer's maximum liability shall not in any case exceed the purchase price of the Product, which shall be fixed as liquidated damages and not as a penalty, and shall be the complete and exclusive remedy against the Manufacturer.*

***Warning:** The user should follow the installation and operation instructions and among other things test the Product and the whole system at least once a week. For various reasons, including, but not limited to, changes in environmental conditions, electric or electronic disruptions and tampering, the Product may not perform as expected. The user is advised to take all necessary precautions for his /her safety and the protection of his/her property.*

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