

ELK-6032

Wireless Outdoor PIR Sensor

APPLICATION & OVERVIEW

The ELK-6032 is designed for use with control/transceivers that accept ELK's two-way technology; such as the ELK-M1XRFTW. It is intended for use in residential and light commercial installations and incorporates many features designed to ensure its reliable performance.

The 6032's dual element pyroelectric sensor detects movement within a specific coverage area, by sensing the infrared energy that is emitted from an intruder moving across the sensor's field of view. A change in the infrared energy creates a temperature change in the sensor's zones, which is then processed to determine if the occurrence qualifies as a legitimate motion detect alarm event.

Whenever a violation or alarm event is confirmed the two-way radio transmitter will transmit that to the control/receiver. In addition to alarms the transmitter also sends tamper detect, supervisory, and low battery messages to the control/receiver. Each sensor has a unique TXID identification number which must be enrolled into the control during installation.

With its two-way capability, the 6032 radio expects a positive acknowledgment from the control/receiver after every transmission. This helps ensure that all messages are delivered and also makes the sensor very energy efficient since it does not waste time or energy repeating any transmissions unless they have not been acknowledged.

Like all battery powered motion detectors, there is a battery saving sleep timer designed to help extend the battery life. When the sensor first detects motion it will inform the radio transmitter to notify the control and expect an acknowledgment. The sensor will then enter the battery saver sleep mode and will require either 5 secs. or 120 secs. of inactivity before it will be able to activate again. There are two (2) time choices, 5 secs. or 120 secs. which is selectable via DIP Switch #2.

FEATURES

- Wireless two-way communication
- Dual element pyroelectric sensor
- Selectable pulse count
- Selectable Sensitivity
- Excellent immunity from white light, RF, and ESD interference
- Transmitter board has Bi-Color RF Acknowledge LED
- Long life Lithium batteries {supplied}
- Low battery trouble signal
- Sleep Cycle "Battery Saver" (2 time settings)
- Periodic (64 min.) Supervisory check-in
- Cover tamper protection

The ELK-6032 is a cooperative effort with Optex Corporation combining their VX-402R with ELK's Two-Way Wireless Radio Transmitter.

Installation and Setup Guide



SPECIFICATIONS

- Detection Method: Dual Element Pyroelectric
- Coverage: 12m (40 ft.) x 90° wide
- Detection Zone: 14 Zones
- Mounting: Wall or Pole
- Mounting Height: 0.8 to 1.2m (2.7 to 4 ft)
- Sensitivity: 2.0°C at 0.6m/s (3.6°F at 2.0ft/s)
- Detectable Speed: 0.3 to 1.5m/s (1 to 5ft/s)
- Pulse Count: 2 or 4, selectable
- Sensitivity Selection: Low, Med, High
- External LED Indicator: Off for normal operation, On for Walk Test
- Power Input: 3.0 VDC
- Operating Voltage: 2.5 to 10 VDC
- Battery Type & Size: 2 x Lithium CR123A
- Current Draw: Max. 6mA (Walktest, LED on, Transmitting)
- Standby (Quiescent) Current Draw: 14µA
- Battery Saver Sleep Time: Selectable 5 sec. or 120 sec.
- Operating Temp: -17°C to +49°C (0°F to 122° F)
- Humidity: 95% RH Max. non-condensing
- Warm Up Period: Approx. 2 minutes
- Weather Resistancy: IP54
- Dimensions: 80mm(3.154")W x 198mm(7.8")H x 108mm(4.25")D
- Weight: 480g (16.9oz)
- Accessories: Pole mount kit, Screw kit, Area Masking Plate
- Frequency: 902 - 928 Mhz channel hopping Sensitivity
- RF Transmitter board Acknowledge Indication: Bi-Color LED

GUIDELINES FOR SETUP AND USE

The 6032 Sensor is for Outdoor or Indoor use. It may be mounted directly on a wall or on a solid and stationary pole.

We recommended that it be mounted within 200 to 300 feet of the control/transceiver. While an open-air range of 400 feet or more is possible, adverse indoor and environmental conditions can significantly reduce the actual transmission range. Small changes to the sensor's mounting can often make a big difference in transmission range.

Always locate the sensor where an intruder is most likely to walk across the coverage pattern. Aim the sensor so that it faces inward toward a solid reference point such as a wall. Corner mounting often provides the best detection coverage.

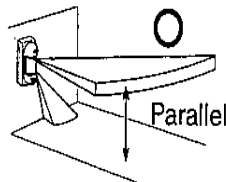
Choose the location and mounting height carefully. For optimum performance the recommended mounting height is between 2.7 ft and 4.0 ft above the ground. The mounting surface must be solid and free of any noticeable vibrations. As with all PIR sensors, select a location that avoids direct sunlight, heating or cooling sources. Always ensure the sensor has a clear line of sight of the area to be protected. Understand that infrared energy does not pass through solid objects, including glass.

ALWAYS try and avoid mounting wireless sensor near large metallic surfaces that might shield or adversely affect the RF signals. Prior to permanent mounting, we recommended a walk test be performed with the control/transceiver to verify acceptable operation of the wireless sensor at its intended location.

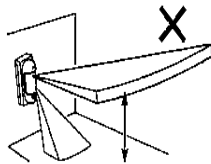
This sensor is designed to be somewhat immune to small animals when it has been mounted at the prescribed recommended mounting height.

1. Perpendicular Installation

Install the sensor perpendicular to the ground to make upper detection area parallel to the ground.

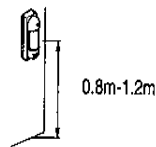


If the sensor is installed at an angle to the ground, operational reliability of the sensor may be decreased.



2. Installation height

Installation height is 0.8m-1.2m (2.7ft-4ft)



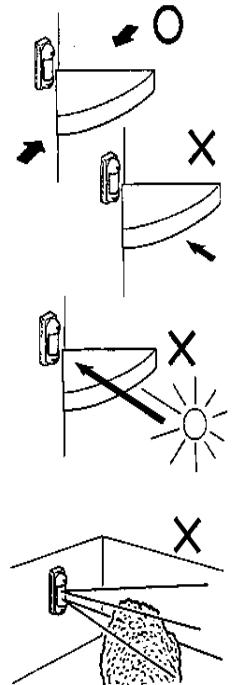
3. Detection Area Setup

The detection area has directionality. Mount the detector so that it must be passed in order to gain entry.

VX-402R is designed to protect any light disturbances.

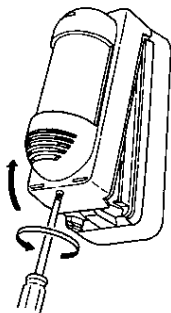
However, too much light such as; strong sunlight directed or reflected exactly into the sensor's field of view may cause unstable operation. It is recommended to avoid installing in such a place.

Avoid pointing the sensor towards moving objects (i.e. swaying trees, bushes, flags, etc.). If moving objects are unavoidable, please refer to troubleshooting reference for proper installation.

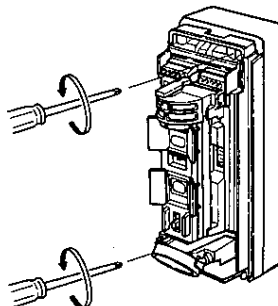


INSTALLATION

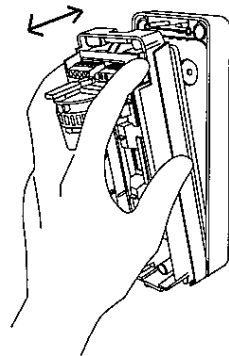
① Loosen the lock screw and remove the cover.



② Remove the screws fastening the back box.



③ Remove the back box.



The 6032 Sensor must be enrolled into the Control using one of the following methods.

3. SENSOR ENROLLMENT FROM KEYPAD

3.1 Make sure the M1XRFTW Transceiver is powered up and enrolled with the M1 Control.

3.2 Enter **M1 Keypad Installer Programming** and navigate to Menu: **14-Wireless Setup**

3.3 Scroll up to sub-menu: **3: Learn Sel Wireless Transmtr** and press **Select** (right arrow).

3.4 Scroll to and select an unassigned **WZone** (wireless zone) and press **Learn** (right arrow) to enroll.

3.5 Insert the Batteries in the 6032 when the keypad displays **Push Transmitter Button** and the M1G speaks "Press transmitter button for zone xx"). Upon successful enrollment the Keypad will chime and briefly display the 6 digit TXID printed on the sensor. If the TXID of the sensor is not displayed then enrollment was unsuccessful. **To attempt enrollment again you must remove the batteries and wait 20 seconds before re-inserting.**

Rapid-Enroll auto advances to the next vacant wireless zone to await another enrollment. To keep the previous sensor from accidentally enrolling a second time, place it face down so that its sensor cannot detect motion while the tamper is open. Repeat enroll steps for each new sensor.

3.6 After all wireless sensors are enrolled, press the ELK or Select Wireless key to stop Rapid-Enroll.

3.7 Set the Loop ID. Scroll to the pertinent wireless zone and press the HW (left arrow) button. An 8 digit number (the TXID in decimal) will now display followed by Loop = 0. For the 6032 move the cursor to the right (press RIGHT arrow) and **enter a "2" for the Loop ID.** This is VERY IMPORTANT! Press the ELK key to return back to the wireless zone display. Loop ID informs the M1 how to handle the input transmission, and thus permits the use of multi-input sensors. A 6032 PIR is a single input device and must always be Loop "2". NOTE: The M1 default for all wireless zones is Loop "0".

3.8 Set Supervision Type - Set this to "1" (Normal Supervision). Press the ELK or the Select Wireless key to locate Sub-Menu: **2:Xmit Transmitter Opt.** Scroll to the desired wireless zone and press Select (right arrow). Scroll to Option **2: Supervision Type** and set it to "1". The control will now expect a supervisory check-in report every 64 minutes. If set to "0" the control will not expect a supervisory check-in from the sensor. NOTE: A separate M1 option sets the number of missed supervisory check-ins before a sensor is declared missing.

3.8 PIR Auto Restore - DO NOT Enable. This option is needed for other brands of wireless PIRs which do not transmit restorals. The 6032 PIR is designed to transmit its own restore following an alarm.

3.9 **PROGRAM THE ZONE DEFINITION** - This must be done from Keypad Menu **5 - Zone Definitions.**

4. SENSOR ENROLLMENT FROM ELKRP

4.1 Launch the ElkRP PC software and open the desired Customer Account file.

4.2 Click the "+" next to Zones (Inputs) to expand the view. Look to see if there are any existing wireless zone groups. If there are none then it will be necessary to add or create a new group. To create a wireless group, right click on **Zones (Inputs)** and click **New Wireless Zones.** Place a check mark in the box to be added, starting with Group 2. Click OK. Repeat if more wireless groups are required.

NOTE: The M1 Control requires all expanded zones to be defined in groups of 16. E.G. Zones 17-32 = Group 2, zones 33-48 = Group 3, etc. **Furthermore, when an M1XRFTW Two-Way Transceiver is included, it must always be enrolled at databus address 2 (the first expander).** This also means that the first group of wireless sensors should be defined as group 2. Since M1 allows a maximum of 144 wireless zones, the last potential wireless zone can never be higher than Zone 160. If a large number wireless zones is anticipated, it would be a good idea to avoid conflict with any future Hardwired Zones in the 17 to 160 range by NOT enrolling any Hardwired Zone Expanders (M1XIN) at any data bus addresses below 10.

4.3 Double click on **Wireless - Group _** (the group just added) and double click one zone at a time to define the Zone Name, Definition, Type, Attributes, etc.

4.4 The next step is to enter the sensor's TXID and the other wireless setup data. This may be done directly from each zone definition screen (click the **Wireless Setup** button) OR from the separate Wireless Setup menu accessed from the folders column.

4.5 Place a check mark in the **Enabled** box.

4.6 Set Supervision type to "1" (Normal Supervision) for the 6032 Sensor. A setting of "0" means the control will not expect a supervisory check-in from the sensor. For additional details refer to Supervision on the previous page.

4.7 Skip past the block titled: This device is a PIR (auto restore). Do Not Enable. The 6032 PIR will transmit a restore after each alarm as long as all functions return to normal. This M1 option is for other supported brands of wireless PIRs that do not transmit restorals.

4.8 Skip to the **TXID** box and enter the Sensor TXID that is printed on the small label attached to the sensor.

4.9 Skip to the **LOOP** box and enter a 2.

4.10 Click **Save.** Repeat the entire step 4 for each additional Wireless Zone and Sensor.

RF ACKnowledge (Green) LED

While installing the batteries and physically installing the sensor it may be helpful to observe the RF Acknowledge LED located on the radio transmitter board. This is a bi-color LED that provides visual status of the two-way acknowledge (response) from the control/transceiver.

GREEN blink = Sensor has successfully transmitted a violation (alarm) transmission to the transceiver and that signal has been received and acknowledged by the transceiver. The green blink is not provided for a sensor restore transmission.

ORG/RED blink = Sensor was not successful in transmitting after multiple attempts. **POSSIBLE CAUSES:** a) Control or M1XRFTW is powered off. b) M1XRFTW is not enrolled with control. c) Sensor is not enrolled. d) Distance between the sensor and the transceiver is too great. Check the following:

- Verify that the M1 Control is powered on.
- Verify that the M1XRFTW Transceiver is powered on and that it is enrolled with the M1.
- Verify that the sensor is properly enrolled.
- Trip a different wireless sensor to determine if it can successfully communicate.
- If above steps are OK, temporarily move the failed sensor closer to the transceiver and retest. If sensor successfully communicates at the closer range then it may be necessary to:

- Relocate the transceiver to a closer and more central location to this and all other sensors.
OR
- Purchase and install an additional "remote" transceiver to cover the area where this sensor was mounted.

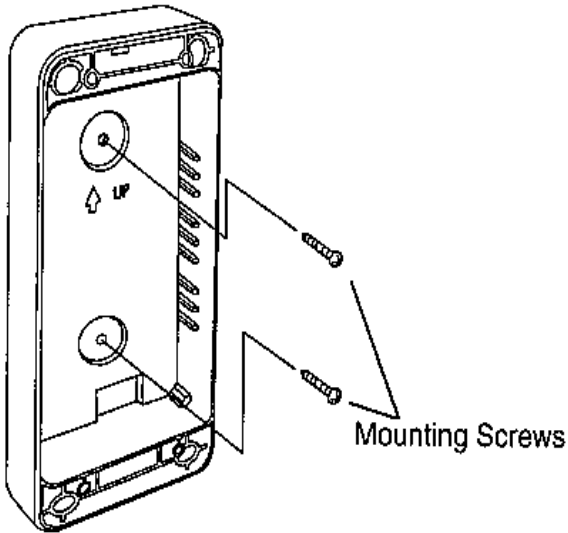
WALK TEST DIP Switch #1

Walk test is a way to verify that the sensor is operating as desired and in the optimum location. With the Walk Test enabled, slow and short steps should be taken across the coverage zones in both directions. When motion is detected, the Red LED should illuminate momentarily. owledge LED

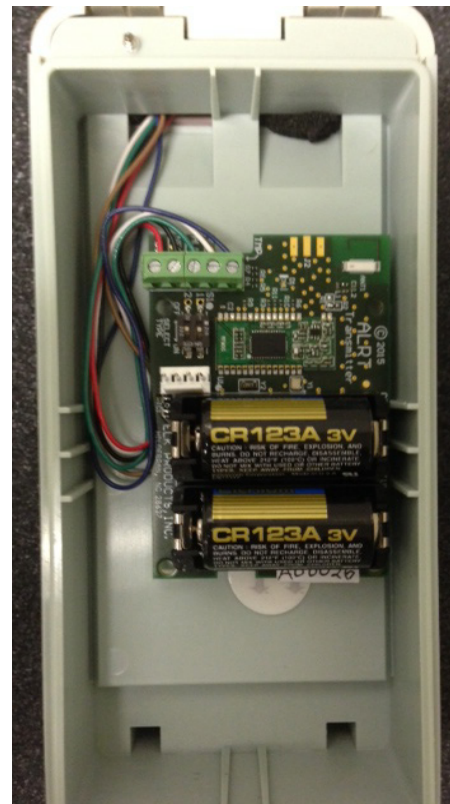
To enable the Walk Test mode you must open the remove the sensor front and turn On DIP Switch #1.

NOTE: The Elk Keypad Walk Test via the Two-way commands cannot enable the Walk Test mode for the 6032 Outdoor PIR Sensor.

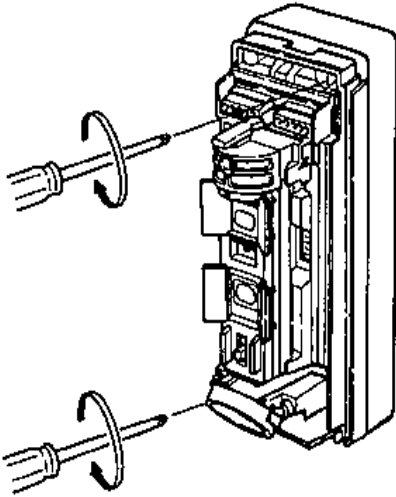
3. Install the back box on the wall with two screws.



4. Install two (2) CR123A Batteries in radio transmitter board located in the back of the electronics unit.



5. Position the electronics unit onto the backbox and secure with two (2) screws.



Wire Connections

Should it ever be necessary to disconnect the Radio Transmitter from the Sensor the following color code should be used when re-connecting:
 Red = +3V, Blk = (-) Neg, Grn = ALM, Wht = Neg, Blu = TMP

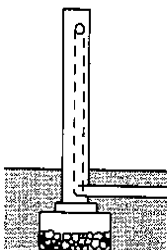
6. Locate the DIP switches and select switch for the sensitivity, walk test, battery saver, and pulse count. Adjust these as necessary, then secure the front cover onto the unit using the single lock screw.

IMPORTANT:

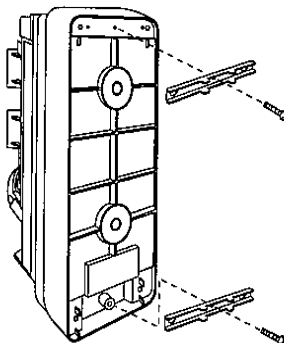
- Unit must be installed perpendicular to the ground.
- Installation height must be between 0.8m (2.7 ft) and 1.2m (4 ft)
- If any sort of roof or cover is to exist above the unit, be sure to allow at least 110mm (4.4") or more to permit the opening and closing of the cover.

ADDITIONAL STEPS IF MOUNTING ON A POLE

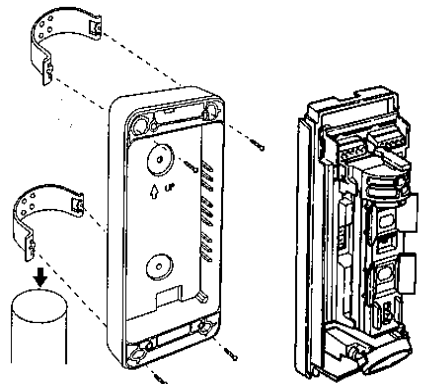
An installation pole with an outside diameter of 43-48mm (1.69"-1.89") must be used.



Mount the mounting brackets on the back box with tap screws (two places).

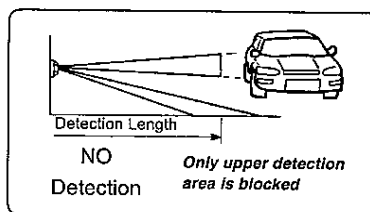
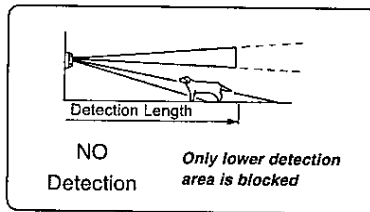
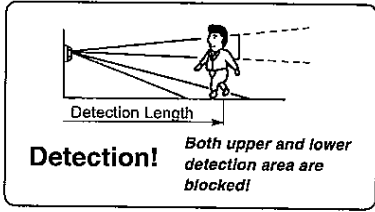


Fasten the U-brackets on the pole with the M4 x 30 screws provided. Mount in accordance with the wall mounting procedure.

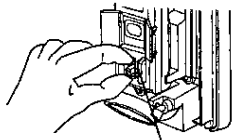


Length of lower detection area decides detection length

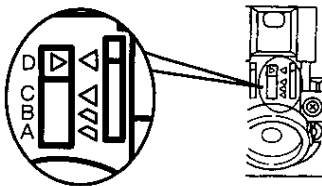
The upper detection area stays parallel to the ground at all times. The lower detection area moves as shown below depending on the switch position. Detection length is therefore limited by the length of lower detection area, since both upper & lower detection area have to be blocked at the same time to activate the sensor.



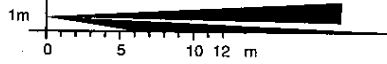
Press and slide the detection length adjustment switch to the desired position.



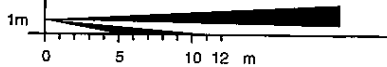
Detection Length Adjustment Switch



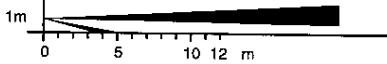
POSITION A (0-12m)



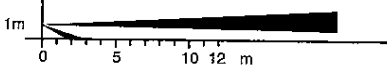
POSITION B (0-8m)



POSITION C (0-5m)



POSITION D (0-2m)



Detection length setting chart

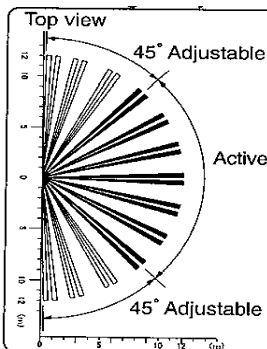
POSITION	MAX DETECTION LENGTH	
	Standard	m (ft)
A	12.0	10.0 - 15.0
	(40.0)	(33.3 - 50.0)
B	8.0	6.0 - 10.0
	(26.7)	(20.0 - 33.3)
C	5.0	4.0 - 5.5
	(16.7)	(13.3 - 18.3)
D	2.0	1.5 - 2.5
	(6.7)	(5.0 - 8.3)

Instnration height=1m (3.3ft)

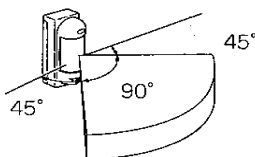
*The maximum detection length may vary as above due to environmental thermal conditions.

IMPORTANT

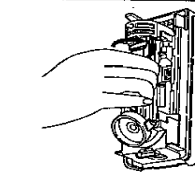
- This product detects temperature differences between the moving object and the background temperature in the detection area. If the object does not move, the detector can not detect it.
- This product has directional characteristics it is difficult to detect the target that is approaching the detector.
- If there is a traffic near the detection area, please adjust detection 1.5m to 2.0m (5ft to 7ft) away from movements.



Active detection fingers.

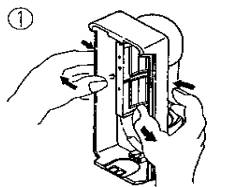
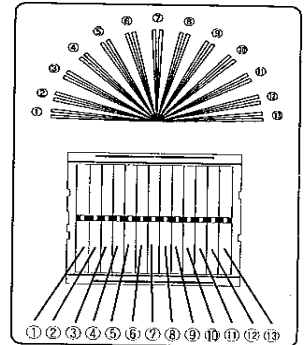


Area angle is 90° with 7 fingers by 15° turn optical cylinder. Angle moves by 15° per notch. (If you want to reduce the number of fingers, fasten the lens with the area masking plate provided.)

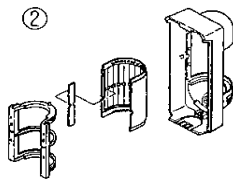


Hold the pyro-electric unit and turn it to the desired direction (15° steps).

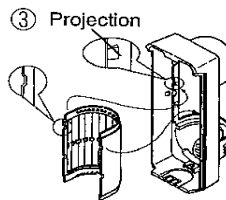
Lens and area correspondence as seen from the inside



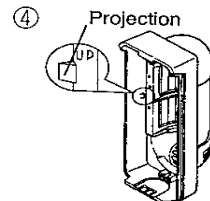
1. Remove the lens holder from the cover as shown above.



2. Separate the lens from the cover. Apply the provided area masking plate to the inside of the lens on the zone to be eliminated.



3. Put the lens back in by aligning the 4 projections on the cover to the 4 cut outs on the lens. (The lens has vertical orientation. Be sure the lens is correctly orientated when mounting.)



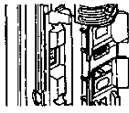
4. Mount the lens holder. Make sure the lens holder is held by left and right prongs on the cover. (Make sure the tabs [2] on the left and right are engaged.)

IMPORTANT

As shown above 5-2, there are always 7 active detection fingers. If the area masking plate is not applied, the active fingers are varied by area adjustment as explained at left. Please check which fingers are active before applying area masking plate.

6. Switch Setup

6-1.Sensitivity Adjustment



Sensitivity Select Switch
(L,M,H)

When greater sensitivity is desired, select "H". When the installation site is poor (bad conditions) select "L".

6-2.DIP Switch Adjustment



1) Walk Test
2) Battery Saving Timer
3) Pulse Count

1) Walk Test

• ON (Walk Test Mode)

- 1) LED will light when detector is tripped.
- 2) Alarm will be generated instantly on detection.

• OFF (Battery Saving Mode)

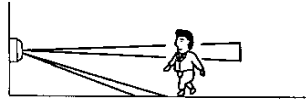
- 1) LED is off.
- 2) After every output trip, the battery saving circuit requires 120 seconds (or 5 seconds) of inactivity before another output is activated.

2) Battery Saving Timer :Selectable 5 or 120 seconds.

3) Pulse Count :Selectable pulse count 2 or 4.

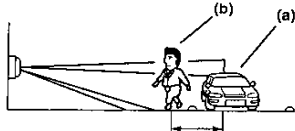
7. OPERATION TEST

1. Turn walk test switch on.
2. Check and adjust the detection area.



IMPORTANT

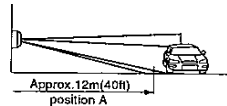
- 1) When a car or person approaches the detection area (a), please adjust the detection area 1.5m to 2m (5ft to 7ft) shorter than movement area (b) and confirm by walk test. This is because, the actual detection area may change from 1.5m to 2m (5ft to 7ft) due to environmental thermal conditions.



The detection area might increase when there is a big temperature difference between the moving object and the background.

Example

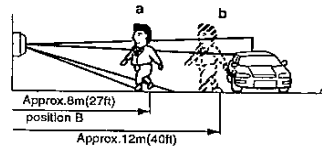
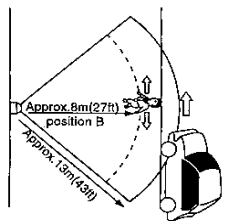
If the detection length adjusted to **position A** [12m (40ft)], there is a possibility to detect the car, depending on the environmental thermal conditions.



In such a case:

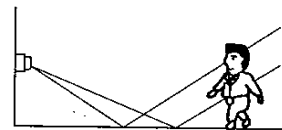
- 1) Please adjust the detection length to **position B**. The detection length will be around 8m (27ft) which is rather shorter than ideal length but can remove the chance of false detection.

- 2) Confirm by walk test. **Detects at area (a) and no detection at area (b).**



- 2) The 6032 has a multi-level detection pattern (from side view). A heat source beyond the detection area may cause the detector to issue a false alarm by reflecting off the ground. Examples of reflective ground are water (puddle), wet roads, smooth surface concrete and asphalt roads.

Reflection rate is not 100% of course on the ground, however, if the heat source is strong and / or reflection rate is high, detection distance will be longer than required and may detect unwanted objects beyond. Select the detection range position, according to the ground condition of the installation site.



ANTI-TAMPER SWITCH

This switch detects the separation of the front housing from the backplate, resulting in a signal being transmitted to the control/transceiver that will cause the associated zone to become violated. Snapping the front housing back onto the backplate will transmit a restoral.

FUNCTIONAL 'SYSTEM' TESTING

A system test should be done by physically walking across the coverage pattern while the system is fully armed.

NOTE: Allow time for the Sleep Cycle Timer to expire before testing and always notify the Central Monitoring Station prior to performing any testing.

BATTERIES

The unit requires 2 x CR123A Lithium batteries. The estimated service life is 5 to 7 years in a typical residential installation with the Battery Saver sleep set to the 120sec setting.

To clear a sensor low battery trouble condition, remove both old batteries and WAIT AT LEAST 20 seconds before installing new batteries. Once the new batteries are installed, trip the sensor a couple of times. This should send an "all good" and clear the low battery trouble.

BATTERY REPLACEMENT

Use only approved 3V Lithiums. Replace both batteries at the same time and with same date code if possible. Replacements can be obtained from Alarm Distributors.

1. Remove sensor from back housing.
2. Remove both old batteries from sensor.
3. **WAIT AT LEAST 20 SECONDS** before installing new batteries. **Observe correct polarity** when installing new batteries. Do not bend or damage the metal battery holder contacts. Approved 3.0 Lithium Batteries are: Panasonic CR123A, Duracell DL123A, Varta CR123A,
4. Re-test sensor operation with the control.

BATTERY WARNING: Risk of fire, explosion and burns. Do not attempt to re-charge or disassemble. Do not incinerate or expose to heat above 212° F (100° C). Dispose of used batteries properly. Keep away from children.

LIMITATIONS

While the 6032 Passive Infrared (PIR) Motion Detector is a highly reliable intrusion detection device, it does not offer guaranteed protection against burglary. Any intrusion detection device is subject to compromise or failure to warn for a variety of reasons:

PIR Detectors can only detect movement within a specific coverage area as diagrammed in this manual. To detect movement, the PIR Detector senses the infrared energy that is emitted from an intruder moving across the sensor's field of view.

PIR Detectors do not provide volumetric area protection. They create multiple beams of protection. Intrusion can only be detected in unobstructed areas covered by those beams.

PIR Detectors cannot detect motion or intrusion that takes place behind walls, ceilings, floors, closed doors, glass partitions, glass doors, or windows.

The radio transceiver only provides communications. It does not have anything to do with detecting motion.

The 6032 PIR is not a Life Safety device.

LIMITED WARRANTY

The 6032 Wireless Outdoor PIR Sensor is warranted to be free from defects and workmanship for a period of 2 years from date of manufacture. Batteries used with wireless devices are not warranted. Elk makes no warranty, express or implied, including that of merchantability or fitness for any particular purpose with regard to batteries used with wireless devices. Refer to Elk's website for full warranty statement and details.

FCC COMPLIANCE STATEMENT:

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.

NOTE: 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:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

ELK-6032 Wireless Outdoor PIR

CONTAINS: FCC ID: TMAELK-ALRT

NOTE: ELK PRODUCTS IS NOT RESPONSIBLE FOR ANY CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

