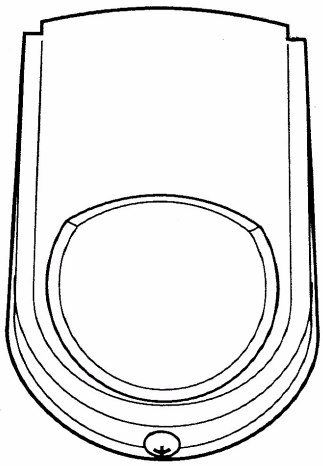
CHALLENGER
YOUR PARTNER IN A MORE SECURE FUTURE

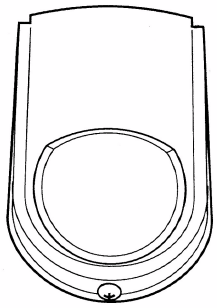
DUAL TECHNOLOGY MOTION DETECTOR

MODEL NO. AD37



Installation Manual

AD37 G2 PIR Dual Tech Features



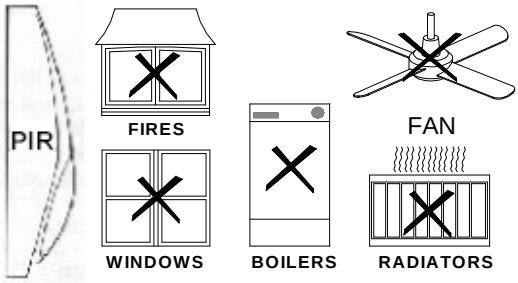
- Grade 2 passive microwave and infra-red dual element intrusion detector.
- S.M.D. Technology.
- 12m, 90° Convex honey comb, hemispherical infra-red lens.
- Excellent false alarm suppression.
- Thermal optic protection cavity.
- LED indicator: A multi-color LED provides detector status
- High RFI & EMI Immunity.
- Pulse Counter (2, 3 and 4 pulses selectable)
- Range-controlled radar(RCR) technology
- Selectable EOL resistance.
- Temperature compensation for the sensitivity of the PIR.

Introduction

The *AD37* is a dual technology motion sensor combine range-controlled radar(RCR) technology with a passive infrared (PIR) system to increase false alarm immunity by allowing then to sense human-sized objected with a specified range. Both the RCR and PIR systems must be trigged to set off an alarm.
The *AD37* is compact, attractive and easy to install, it can be mounted indoors on a wall or in a corner.
The *AD37* is ideal for commercial, office and residential applications.
The *AD37* emits no radiation and is harmless to humans & animals.
The *AD37* reduces false alarms to a very low level due to its effective elimination of background noises and nuisance stimuli.

Mounting Location

The AD37 is designed for indoor use. It should not be mounted near to large metal objects or on metal surfaces. It needs to be mounted on a wall or in a corner at a height of approximately 2-2.5meters for the best general coverage in an average room. The detector has been designed to avoid false alarms, nevertheless, it is best to avoid looking directly at sources of heat such as fires and boilers, and always try to keep away from a window. A PIR can look at a radiator but should not be sited above one.
Please note that the microwave sensor can penetrate walls, floors and ceilings.



When installing multiple sensors:
-DO NOT mount sensors facing each other.
-DO NOT mount facing moving or vibrating objects. (fans, pulleys, conveyor belts)
-Mount them at least 40 feet(12.2m)apart.
-Mounting sensors back to back is not recommended, but if an application requires such mounting, use the 13 ft (4.0m)range, mount at least 1 ft(0.3m) apart, and walk test the installation to ensure proper operation.
Do not site a PIR where its field of view may be obstructed (e.g. by curtains). Also note that PIRs work best when sensing movement across rather than along their detection beams. You need to consider the need to wire these units back to the Control Unit.

Mounting the detector

1. Remove and retain the screw from the bottom of the PIR and lift off the cover.
2. Carefully remove the electronic module from its retaining clips, ensuring **not to touch the pyroelectric sensor and RCR Sensor** (Illustration 1).

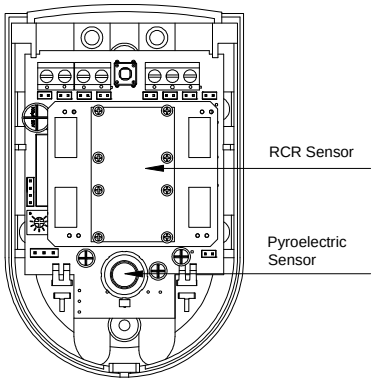


Illustration 1

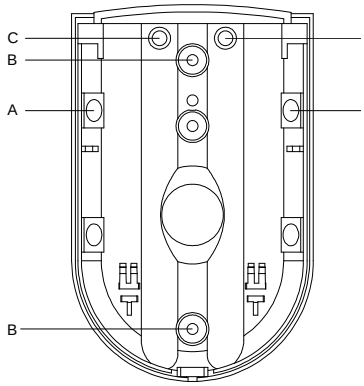
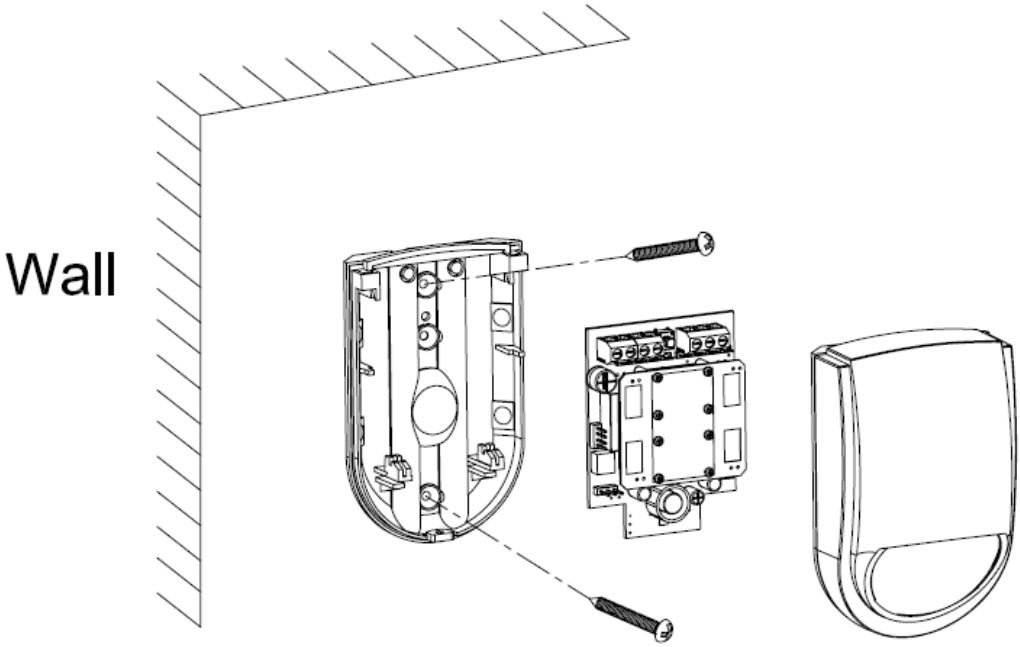


Illustration 2

3. Install PIR on wall as below figure



4. Hold the base of the PIR in the chosen position, ensuring that the front of the PIR will face towards the center of the protected area, mark and drill two fixing holes in the wall.
   Choose one of the cable entry holes "C" and make a third hole in the detector base. Put one end of the wire through this hole "C", then secure the PIR to the wall.
5. Replace the electronic module into the retaining clips, ensuring that it is correctly positioned and firmly seated.
6. If required, select the LED "ON" or "OFF" option and the sensitivity (pulse count)of PIR by setting the corresponding jumpers on the electronic module. Note that Pulse2 option is more sensitive than the pulse 4 option. Pulse 2 option is used when it is necessary to activate an alarm on the first detected pulse, or in high security installations – where fast "catch" performance is of greatest importance. Pulse 3 or 4 settings provides improved protection against false alarms caused by all types of environmental disturbances. (Illustration 3)
7. Jumper J14 for walk test of part company. Selected 1-2 position for PIR testing, Selected 2-3 position for range-controlled radar(RCR), Selected 3-4 position for PIR and range-controlled radar(RCR) testing together. (Illustration 3)
8. Range-controlled radar (RCR) provides trimmer (VR2) to select the detection range. (Illustration 4). You need to set VR2 as close to the intended coverage range as possible. Overshooting the coverage area may cause false alarms.
9. For disable EOL function do not set jumpers of alarm and tamper. (Illustration 6)
10. Enable EOL function and selectable EOL resistance. Refer to the chart below for the correct end of line resistance, and set jumpers of alarm and tamper. (Illustration 5、Illustration 7 and Illustration 8) **Please Note:** for Grade 2 EOL function is required
11.

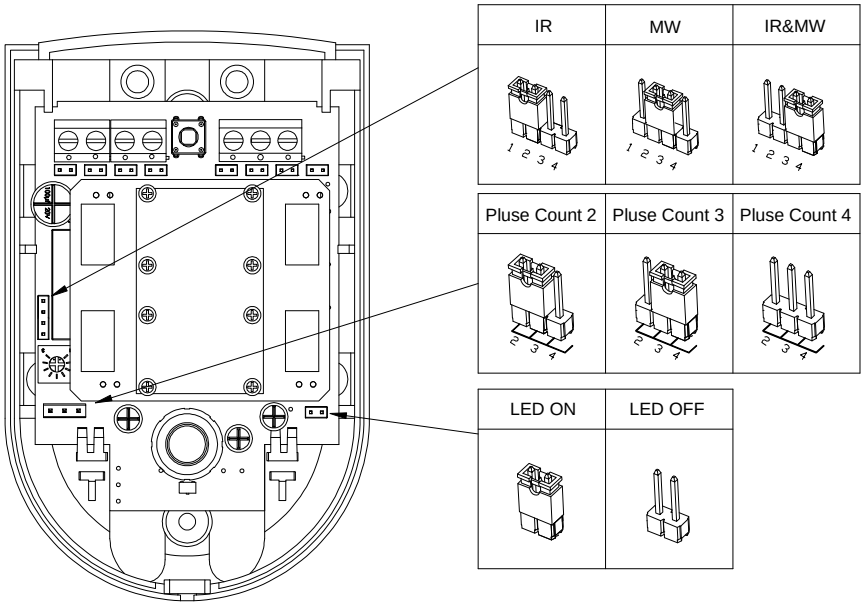


Illustration 3

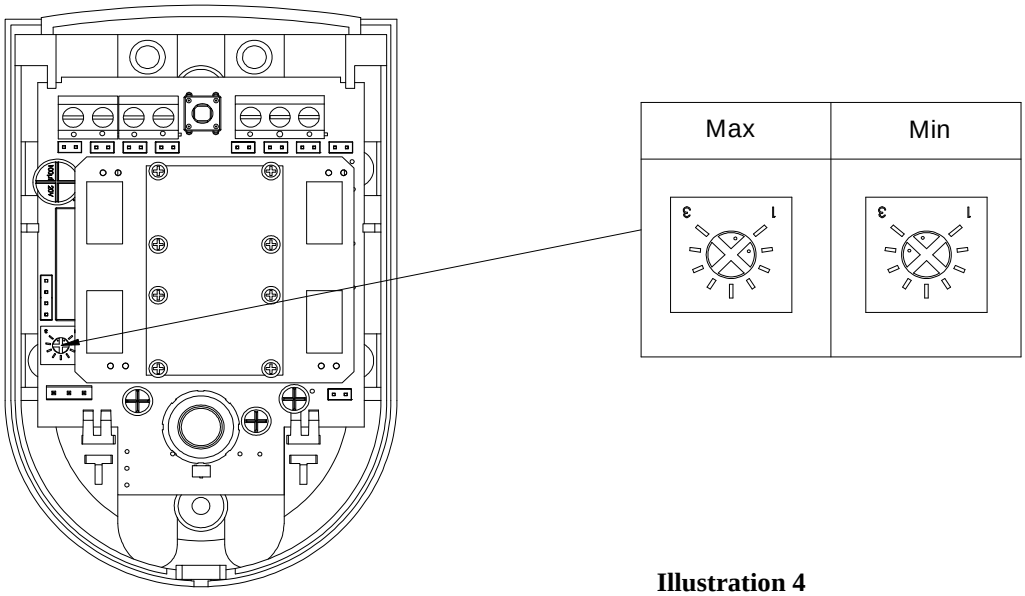
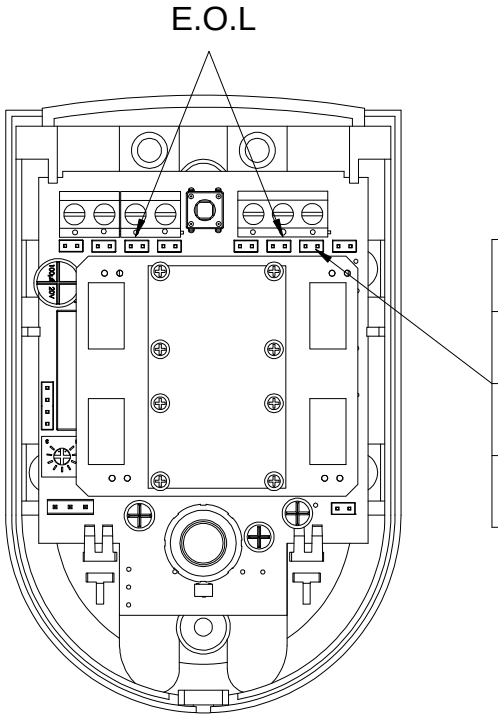


Illustration 4



Tamper				Alarm			
Black	Red	Blue	Yellow	Black	Red	Blue	Yellow
4K7	5K6	2K2	1K	6K8	5K6	4K7	1K

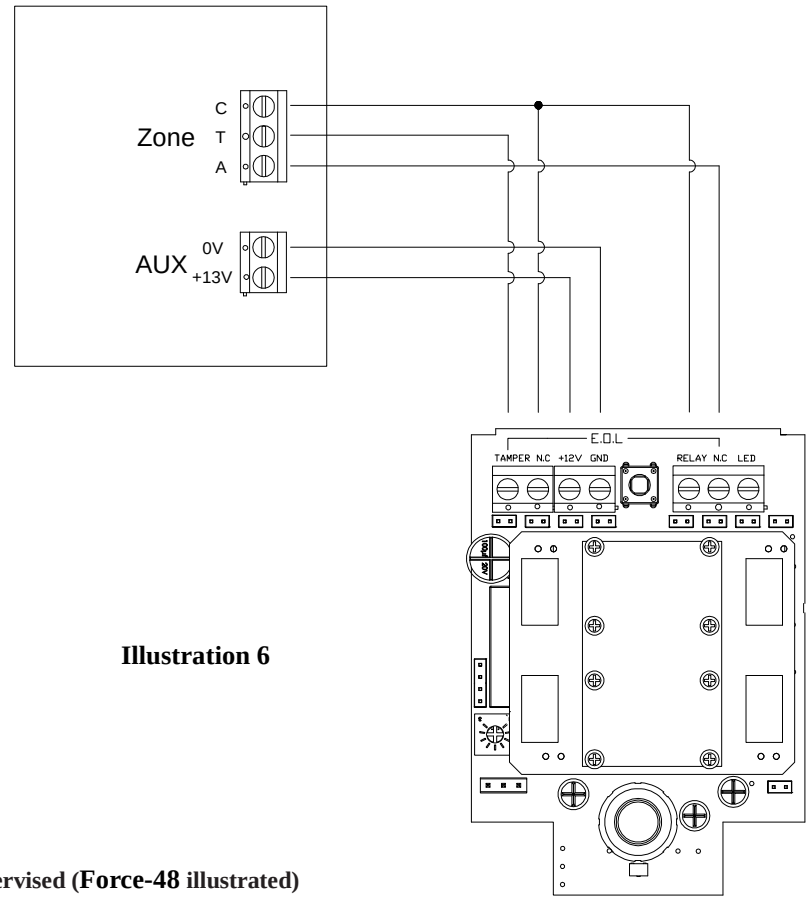
Illustration 5

Control panel types available on this model.

Type	Control Panel	Alarm	Tamper
1	Honeywell, Ademco Microtech	1K	1K
2	Challenger (Force-48), Scantronic, Menvier, Pyronix PCX (12, 22, 44, 128 VID), Texecom, Castle CareTech G3 Plus.	4K7	2K2
3	DSC	5K6	5K6
4	Guardtec	6K8	4K7
5	Pyronix Matrix, PCX SMS, 134, 256.	4K7	4K7

Wiring Diagram

1). Use this wiring configuration when connecting normally closed detection devices to the zone using 6-Wires. (Force-48 illustrated)

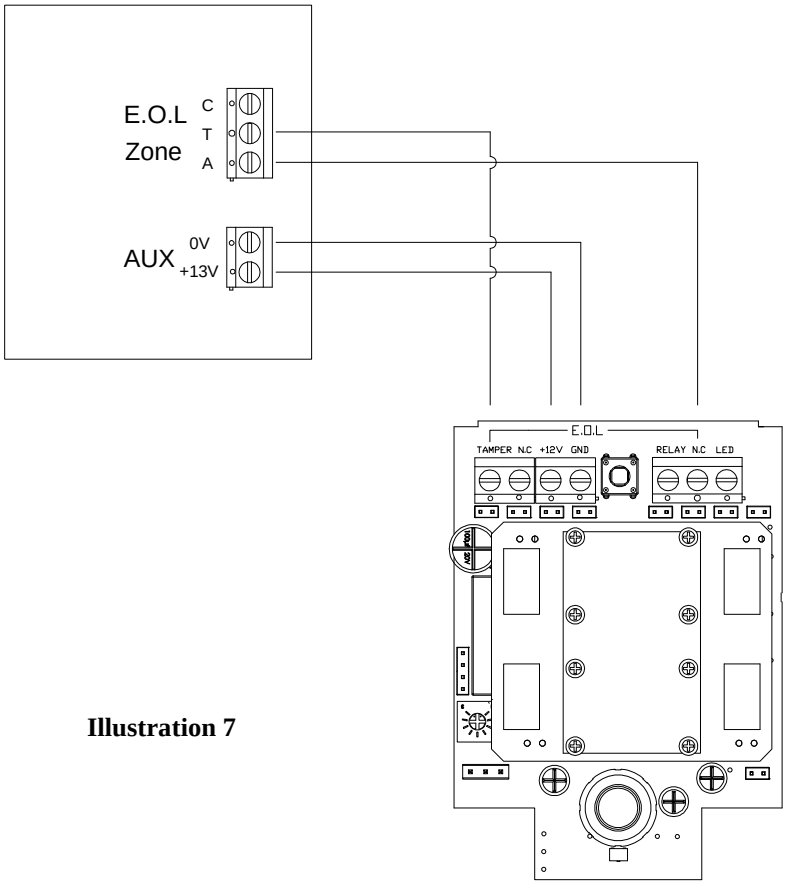


Tamper E.O.L resistor=N.P

Alarm E.O.L resistor=N.P

Illustration 6

2). Fully Supervised (Force-48 illustrated)

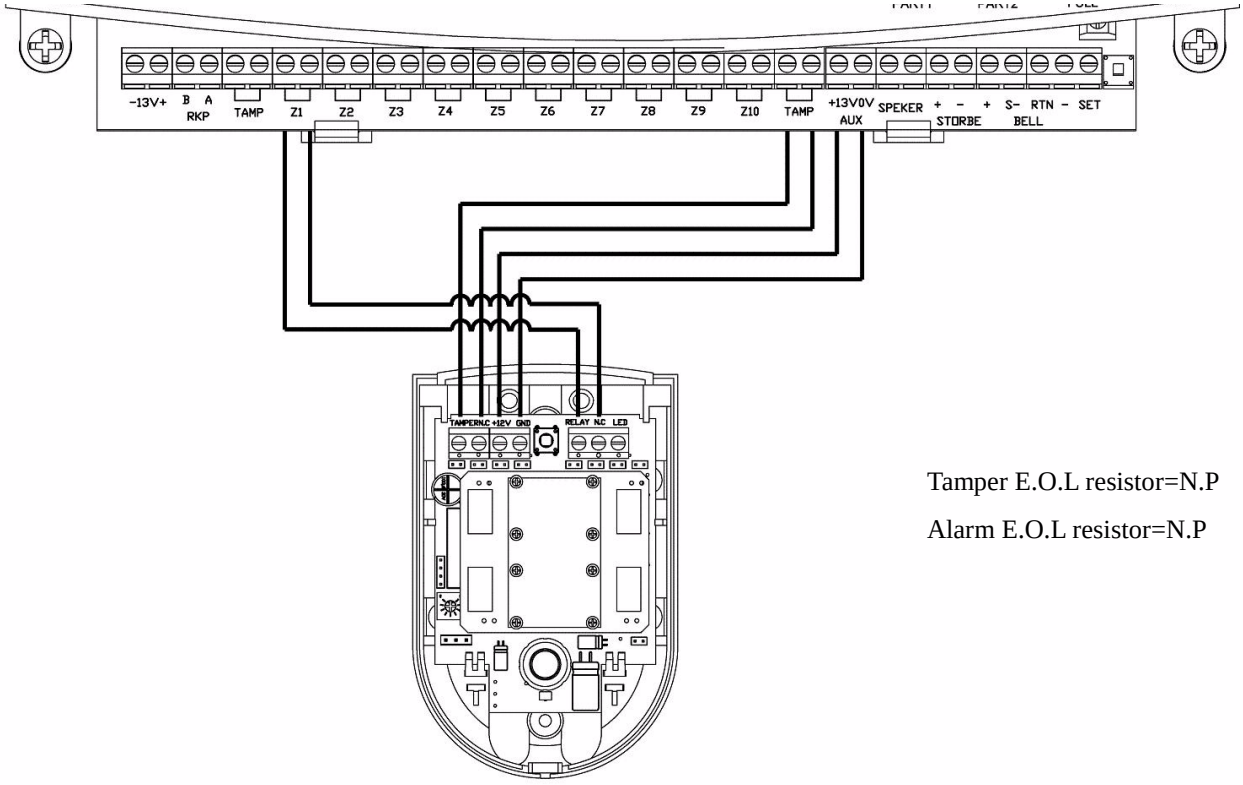


Tamper E.O.L resistor=2K2

Alarm E.O.L resistor=4K7

Illustration 7

3). Use this wiring configuration when connecting normally closed detection devices to the zone using 6-Wires. (Force-10 illustrated)
Please Note: If more than one tamper is to be wired Force 10 system then the **TAMP** circuit will need to be wired in series and not parallel.



Tamper E.O.L resistor=N.P

Alarm E.O.L resistor=N.P

Illustration 8

12. Connect the wires in accordance with the terminal block connections.

– 12V+	Connect to a regulated D.C. power source, observing correct polarity.
TAMP	Connect to a Tamper or 24 Hr. zone, NC in the control panel. Note these are normally closed switch contacts which **open** when the tamper opens.
RELAY	Connect to an Alarm zone, NC in the control panel. Note these are normally closed relay contacts which **open** when the detector alarms.

Walk Testing

A. Apply power and allow 3 minutes for warming up and stabilizing.
B. Adjust the vertical pattern angle per Fig.1 below.
C. Walk slowly across the field of view (in opposite directions) and observe the LED – it lights whenever you enter or exit a sensitive beam. Allow 2 seconds between each test for the unit to stabilize. (See Understanding the LED)
D. After testing, the LED can be disabled to prevent unauthorized tracing of the coverage pattern. To disable the LED, remove the jumper from the left and middle pins of the LED selector (ON) and place it across the middle and right pins (OFF).

Understanding the LED

The multi-color LED located on the bottom of the sensor indicates the status of the unit as described in the following table.

Table1:LEDs

LED	**Status**
Yellow	RCR detection only(no alarm)
Green	PIR detection only (no alarm)
Red	PIR and RCR detection. The sensor is in alarm and the relay has switched

Lens Arrays

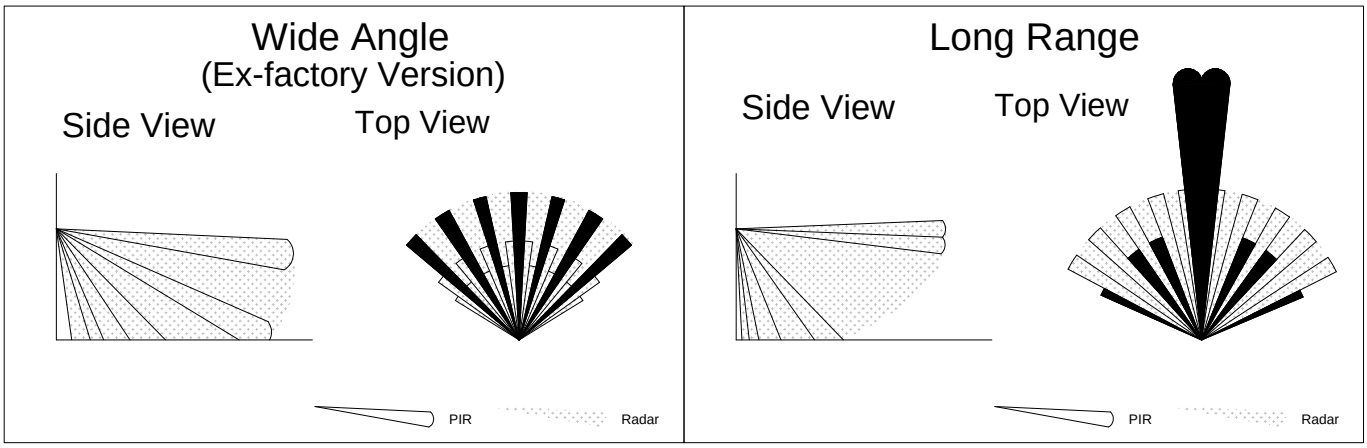
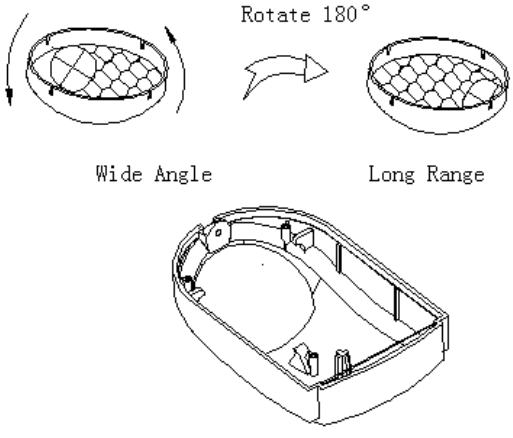


Fig.1

LENS can be adjusted to suit your needs by simply rotating the angle of the lens 180° to change from wide angle version (Ex-factory version) to long range version if required.

WIDE ANGLE
Angle: 105^{o} x 110^{o}
Distance: 12m
Zone Number: 64
Default Setting – Ex Factory

LONG RANGE
Angle: 5^{o} x 5^{o}
Distance: 14m
Zone Number: 8
Default Setting + 180^{o}



Specifications

Operating Voltage	10 - 15V D.C.
Typical Current	27mA
Maximun Current	30mA
Alarm Output	Normally closed dry contacts (0.5A/24V) with 15Ω resistor in series
Tamper Output	Normally closed dry contacts (0.5A/24V)
Alarm Period	2-3 seconds
Pulse Count	3 position selector2,3 and 4 pulse operation
LED	Walk test enabled and disabled with internal link
Detector	Dual Element low noise Pyroelectric sensor, Range-controlled radar
Coverage	90°
Range	Up to 12 meters
Operating Temperature	0 - 50℃

Due to our policy of continuous improvement we reserve the right to change specification without prior notice. Errors and omissions accepted. These instructions have been carefully checked prior to publication. However, no responsibility can be accepted by Challenger Security Products for any misinterpretation of these instructions.

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