CROW
Electronic Engineering Ltd
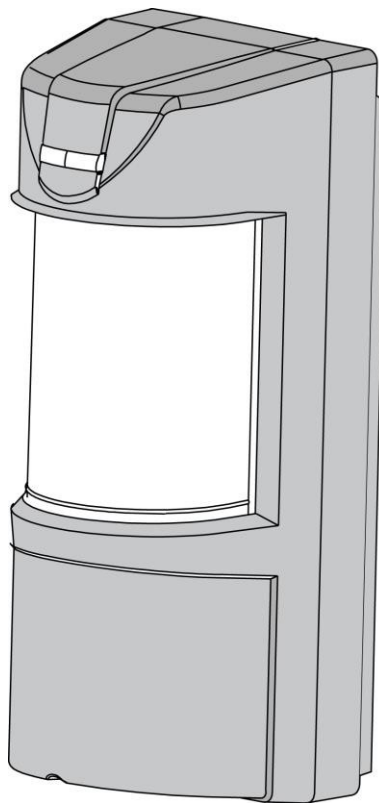
FW2-EDS 3000AM

Two Way Wireless Outdoor
Double PIR Detectors with Anti-masking

INSTALLATION INSTRUCTIONS
&
USER MANUAL

# TABLE OF CONTENT

1   Introduction

The FW2-EDS3000AM is a unique two-way wireless outdoor double quad motion detector with active Anti-Mask feature. The advanced Double PIR Elements provide two detection areas for superior stability.

The FW2-EDS3000AM is designed for outdoor usage in most severe and extreme acclimate conditions that may also accommodate pets.

High reliability is achieved by combining both Dual Quad Sensors with highly sophisticated software as well as an adaptive coverage area, reducing false alarms alerts to zero while maintaining high security standards for the detection of human intruders into protected area.

The detection sensitivity and range is controlled by optical rotary switch allowing 25 calibration levels, so that the effective pattern will be set for every installation environment and protection site.

The FW2-EDS3000AM is designed to protect large areas and can easily be installed on walls in order to provide a solid protection of the area while rejects interferences from birds and small animals due to "PET MASK" optics.
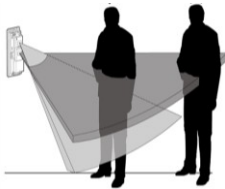
Double PIR Elements	Pet Immunity	Anti-Masking	2 Way Wireless	Remotely Configurable

2   Features

- GFSK 2 Way Wireless Protocol

- Frequency Band: 868.35MHz / 916MHz.

- Powered by 4 Lithium batteries Type AA (Battery life: Up to 5 years).

- Tamper Open/Close transmission.

- Supervision transmission.

- Battery status transmission.

- LED indications

- Range up to 500m on open space.

- Remotely configurable.

- Height installation calibrations free: from 0.8m to 1.5m

- Pet Immunity up to 35kg.

- PIR sensitivity adjustment.

- Temperature compensation.

- Front and Back tamper protection.

- Sound indication for walk test and intruder detection.

- Unique waterproof and seal plastic design.

- Detection Range: Up to 12m

- Protection from: direct sunlight, wind up to 30m/sec, snow and rain, small animals…

- Anti-Masking feature enabled by Dip Switches or Remotely *(from Serenity™ control panel)*

3   Operation

This FW2 EDS3000AM detector transmits the following events data:

- **SUPERVISION**– A periodical transmission (configurable) indicating detector's presence.

- **ALARM** – Alarm transmission triggered by the device indicating Motion detection.
  The Red LED will blink once.

- **LOW BAT** – Whenever the battery reaches the low level (2.5V), a Battery Low signal will be sent. When Battery level drops below Cut Off level (2.3V) the device will stop functioning and the Red LED will blink for 10 seconds and then turned Off.

- **TAMPER** – Whenever the cover is removed from Bracket or the device is tear off from the wall, a message will be transmitted with "Tamper ON" signal. When cover will be returned a "Tamper OFF" signal will be transmitted.

- **ANTI-MASKING** – If an attempt is made to mask the lens with a sticker or to put a masking object close to the lens, a trouble alert will result up to 180 seconds after masking

4 Assembly Description

The FW2-EDS3000AM is a robust detector which includes indication LED prism that can be easily observed from long distance.

Having a back metal bracket, the FW2-EDS3000AM can be easily mounted to walls and poles using mounting screws (supplied) or metal bands.
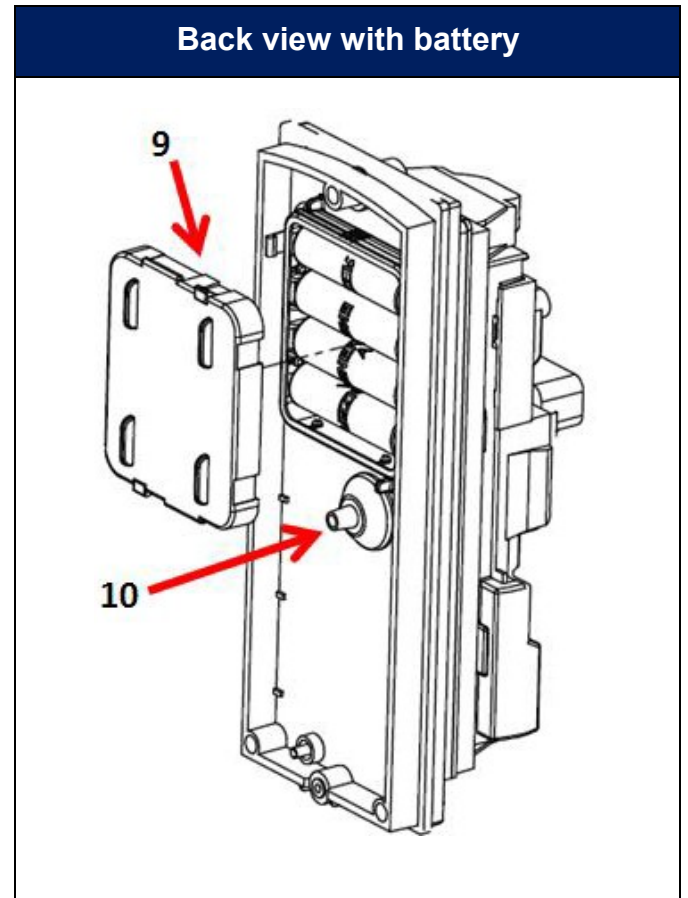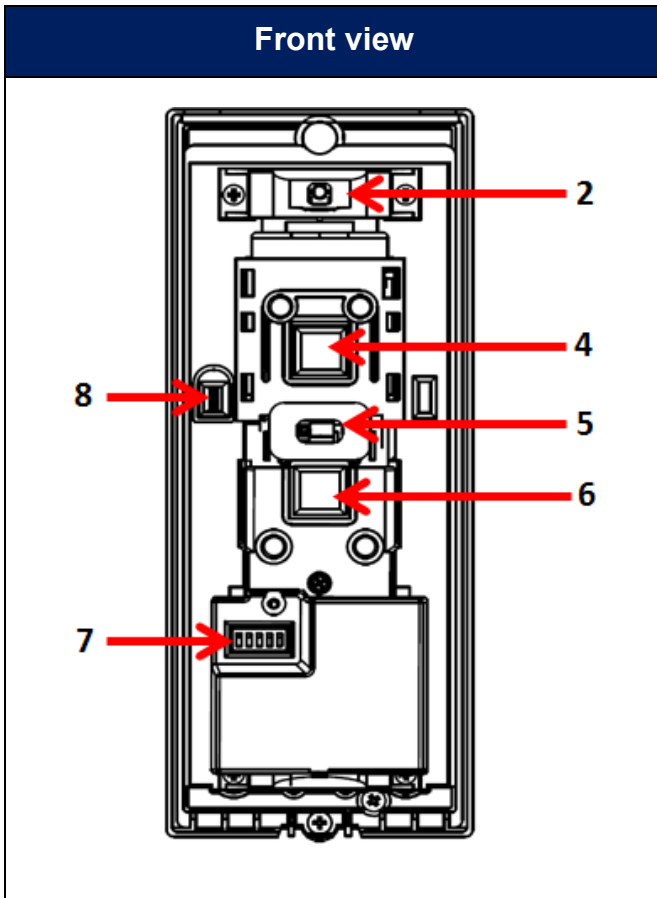
1	Front Cover	3	Detector Main Unit
2	LED Indicator	4	Back Metal Bracket

Front view	Back view with battery
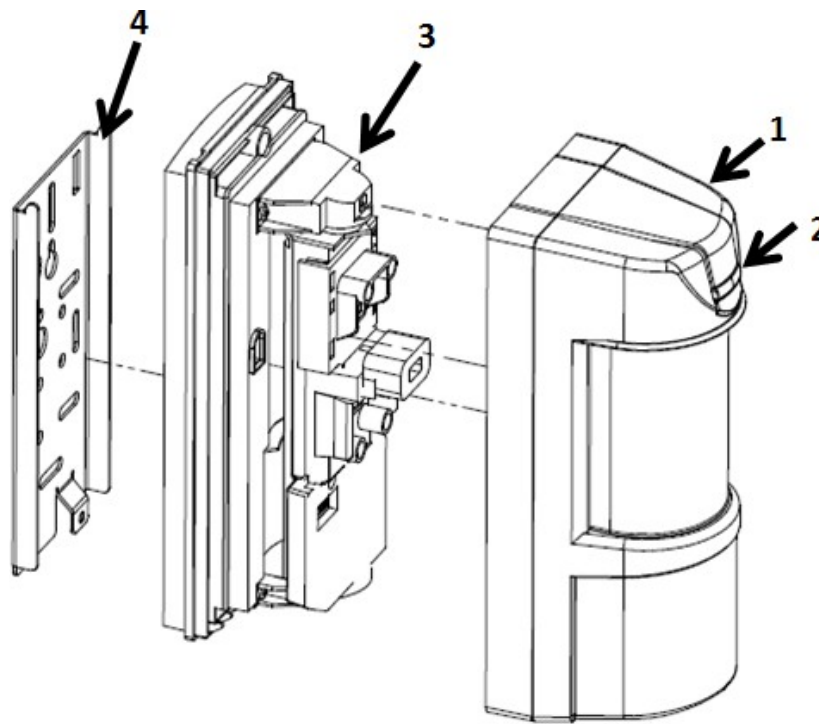
2	LED Detector
4	Upper PIR Element
5	Anti-Mask Sensor
6	Lower PIR Element
7	Dip Switches
8	Front Tamper Switch (Opening)

| 9	Batteries Cover
10	Back Tamper Switch (Removal)

5   Detection Pattern

5.1   Range Adjustment

The FW2-EDS3000AM has a 90° top view Double PIR detection pattern with over 12m detection distance (when installed at 1.5m above the ground surface).

The FW2-EDS3000AM has an internal rotating housing (which includes the 2 PIR elements) that can be adjusted vertically, so its 90° coverage may vary between 0° and 180°.
The Upper PIR element can be horizontally adjusted to 5 different levels.

Adjustable
Detection Range

Upper PIR element detection pattern
Adjustable between 3m to 12m
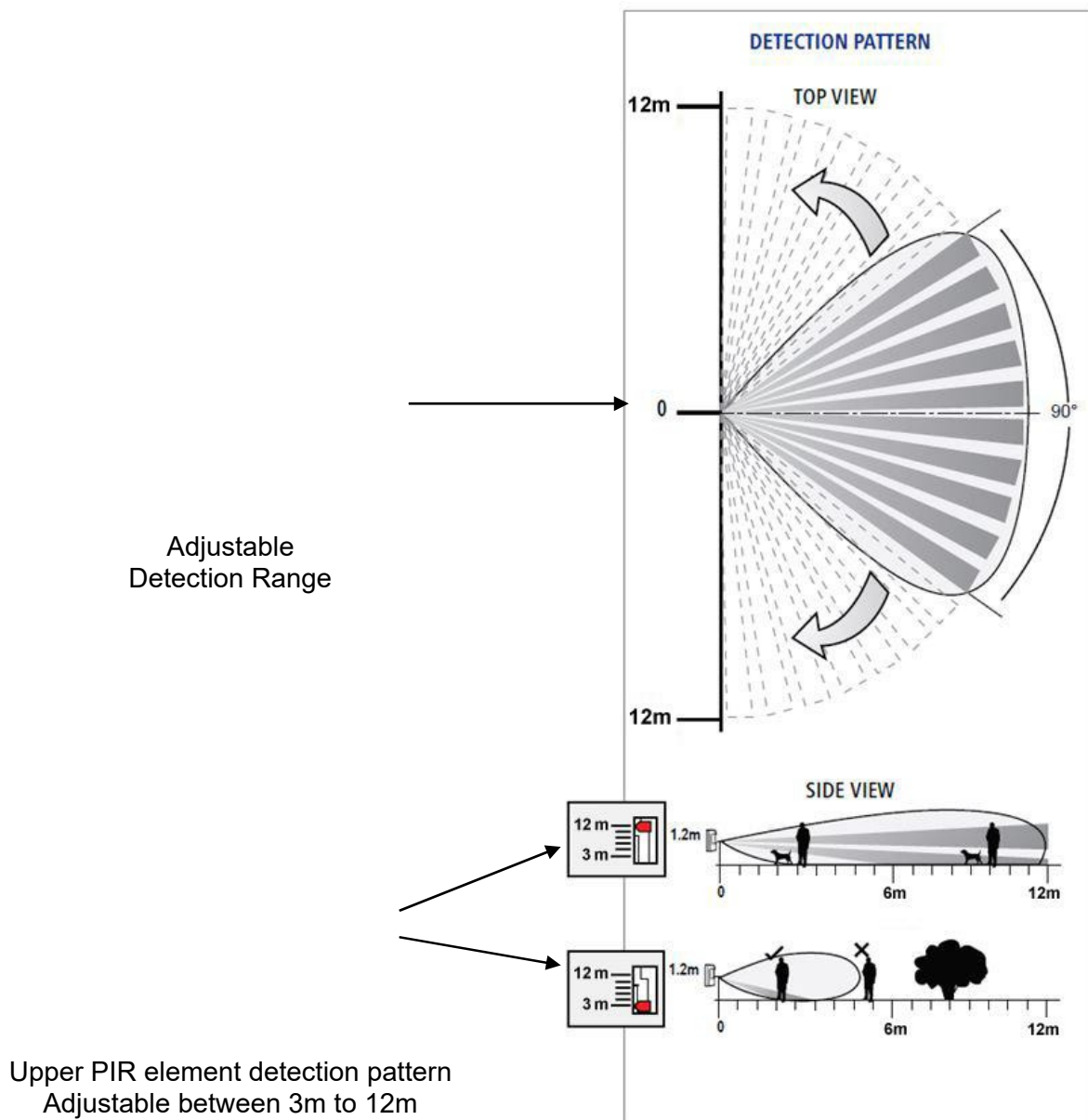
5.2   _Pet Immunity_

The FW2-EDS3000AM can differentiate between pets and human bodies and alert accordingly by having PIR detection beams movement detection:

A. Lower PIR element which is fixed to 12m range and 60 cm above ground level which helps avoiding pets' detection over the entire area.

B. Upper PIR element which has adaptive range between 3m and 12m.

By having both PIR detection beams detection the crossing object will be defined as intrusion, causing an alarm.
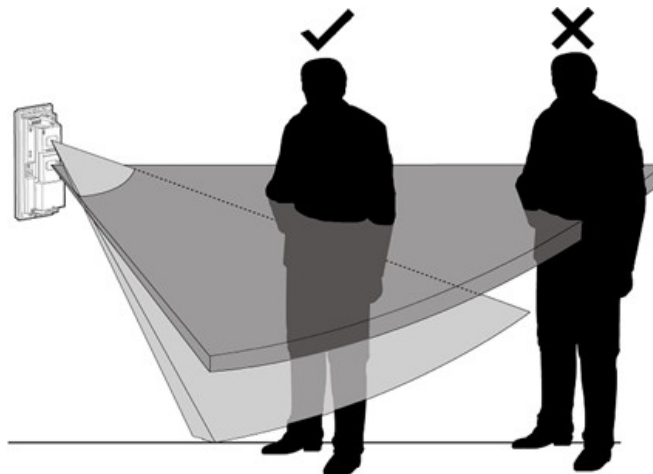
6   Learning & Installation

6.1   Select Mounting Location

The installation of the FW2-EDS3000AM requires straight and solid base for the detector and setting of front panel against the center of protected area.

The protected area must be free from obstacles like walls, fences, trees, ditches and other microwave detectors, as well as systems of anti-intrusion surveillance.

The back metal bracket provides FW2-EDS3000AM installation on a wall or pole. The wall or pole should be leveled.

Choose a location most likely to intercept an intruder according to detection pattern on page 6.

Avoid the following Installation Locations:

- Facing direct sunlight.
- Facing areas subject to rapid temperature changes.
- Wall angle of more than 10º from perpendicular line.
- Mounting at more than 10º Deviation from horizontal line.
- Facing metal doors.
- Do not install near direct source of heat or air gust.
- Clear all physical obstacles from the detection area (e.g. Plants, laundries, etc.)
- Clear all light reflecting surfaces from the detection area, as well as water puddles.
- Avoid installation on the following types of ground:
- Thick vegetation, Grass (un-mown), Water, Sand and Metal.
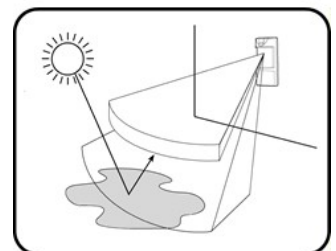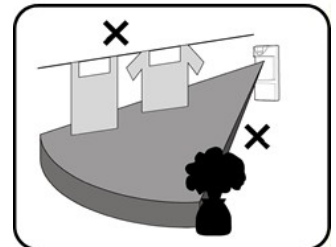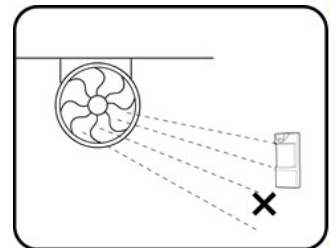
NOTE:
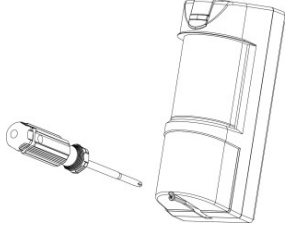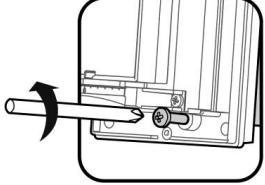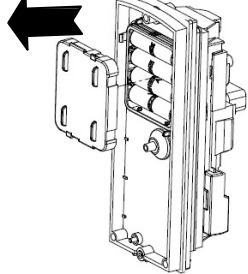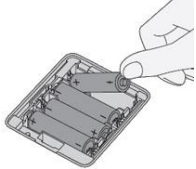
Recommended installation height is 1.2m.
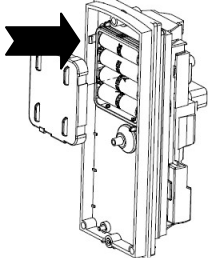
If there is a risk of tall pets (over 60cm) the detector is to be installed at 1.5m.

The Double Quad high quality sensor detects motion crossing the beam; it is less sensitive detecting motion towards the detector.

The FW2-EDS3000AM performs best when provided with a constant and stable environment.
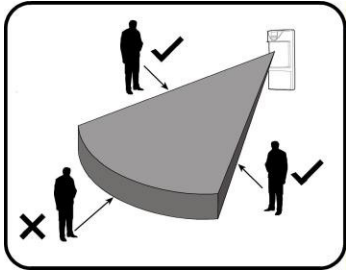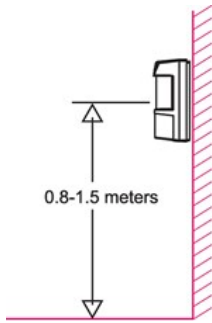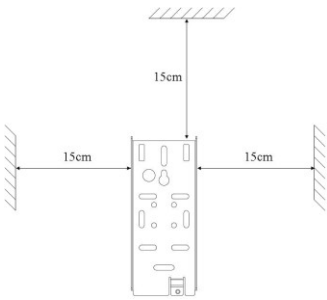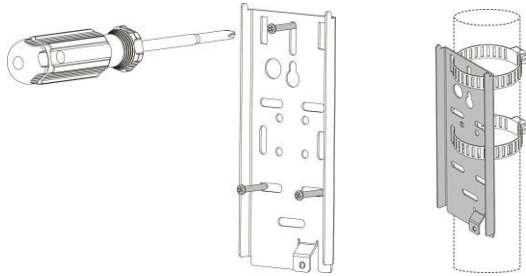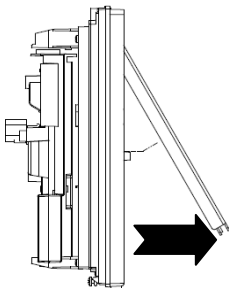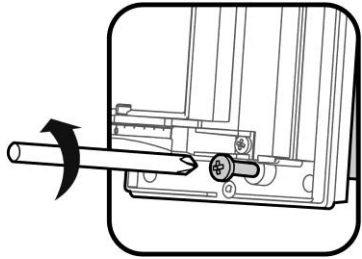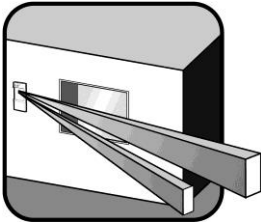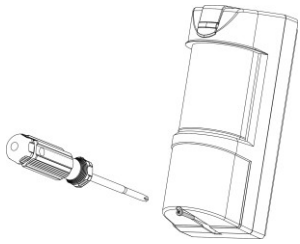
In order to ensure suitable operation of the FW2-EDS3000AM type of ground should be one of the following: Asphalt concrete, Cement, Soil, Clay, Gravel or Grass (mown).

6.2   Learning Procedure

Open the detector unscrewing the bottom screw.	
Unscrew the detector unit from the back metal bracket and remove it by tilting it.	
Remove the batteries cover	
Initiate the control panel in "Zone" learning process (refer to the manual of your control panel for more information)	
Insert batteries in the detector respecting the polarity (+/-)	
LED of the detector will start blinking alternately Red/Green during the warm up and learning process (30 secs)	30 Sec during Warm Up and Learning
The learning process should be completed within 30 seconds. Control panel will indicate completion at the end of the process.	
Close the battery cover	

6.3   Detector Installation

Important! *Prior to installation, read "Select mounting location" section carefully.*

1. Detector has to be installed in such manner that the intruder is most likely to cross the detection area from side to side.	2. The detector has to be installed at height of 0.8m to 1.5m
3. Draw metal bracket holes on the wall, leaving 15cm from all sides, for easy installation and maintenance.	4. Install the metal bracket on the wall or a pole using mounting screws or metal bands.
4. install the detector unit on the metal bracket	5. Screw the detector unit to the back metal bracket
6. Adjust the detection beam to reach the best detection range (refer to Part 7 "Settings & Adjustments).	7. Close the detector cover screwing the bottom screw

IMPORTANT NOTICE

After detector closure, the detector starts calibration process.

Do not stand in detector's range during this period of 3 minutes.

After this period, the detector is ready for operation

7 Settings & Adjustments

7.1 Detection beam direction

The FW2-EDS3000AM detection beam direction may vary between 0º and 180º.
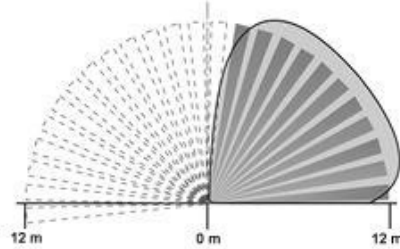
In order to change the detection beam direction rotate the internal detection element housing to the desired direction.

7.2 Detection range setting

The FW2-EDS3000AM detection range may vary between 3m and 12m, while installed on 1.2m height above the ground surface.
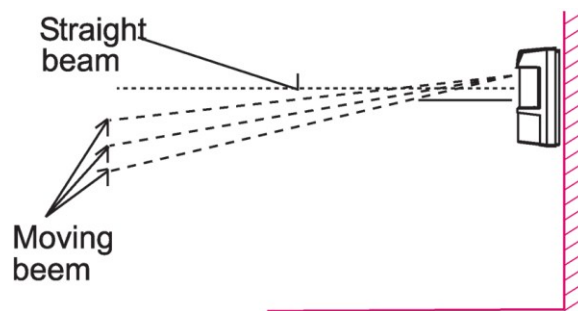
Changing the detection range is achieved by sliding the upper detection element up or down:

Long Range

Short Range

Slide the detection element down for long range or up for short range detection.

7.3   Dip Switches Functions

There are 5 DIP switches on the FW2-EDS3000AM board that enable settings of following functions:
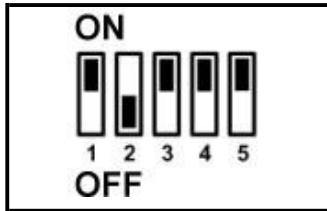
** Factory Defaults Positions

	ON = ENABLE	
SW1	PIR Sensitivity	
SW2		
SW3	LED Indication	
SW4	Anti-Mask Activation	
SW5	Buzzer Audio	
	OFF = DISABLE	

Switches 1 & 2 – PIR ELEMENTS SENSITIVITY SETTING

Use the following combinations for setting PIR upper and lower element sensitivity control according to the environment.

Switch Position		DESCRIPTION
SW1	SW2	
OFF	OFF	LOW SENSITIVITY
OFF	ON	MEDIUM SENSITIVITY
**ON	**OFF	** NORMAL SENSITIVITY
ON	ON	HIGH SENSITIVITY

Switch 3 – LED VISUAL INDICATION

Use for setting LED Enable / Disable

** UP Position (ON) – LED enabled

   DOWN Position (OFF) – LED disabled

Note: the state of the switch "LED" does not affect the operation of the ALARM and TROUBLE relays.

Switch 4 – ANTI-MASK ACTIVATION

Use for Anti Mask function setting

** UP Position (ON) – AM feature enabled

   Down Position (OFF) – AM feature disabled

MASKING CONDITION

If an attempt is made to mask the lens with a sticker or to put a masking object close to the lens, a trouble alert will result up to 180 seconds after masking:

The Red LED will blink and the TROUBLE (Tamper) will be transmitted.

RESET AFTER TROUBLE OR MASKING

In case of masking alarm, proceed as follows:

Search for masking material or objects on the lens or in front of the detector and remove them.
Reset the detector by walking in front of it. Cross its field detection causing it to alarm several times.

If everything is back to normal, the LED should stop blinking, and the TROUBLE should reset.

Note: If walk testing does not cause the trouble alert to stop, recheck for masking.

Switch 5 – BUZZER AUDIO INDICATION

Use for setting Audio Buzzer Enable / Disable

** Up Position (ON) – Buzzer enabled

   Down Position (OFF) – Buzzer disabled

Setting the buzzer ON gives the installer the ability to hear a beep on each detection for 1.8 seconds during the adjustments and walk test. After this process it is recommended to switch the buzzer OFF.

8   Test procedure

Walk Test Procedure:

- Allow 3 minutes of warm up time.

- Make sure that the protected area is cleared of all people.

- Initialize the "Walk test" mode on your control panel

- Start walking across the detection zone.

- Listen to ALARM sound whenever motion is detected (the red LED and the Buzzer also turns ON whenever motion is detected).

- Allow 5 sec. between each test for the detector to stabilize.

Upon installation, the unit should be thoroughly tested to verify proper operation.

Walk across the entire area where coverage is desired. Should the coverage be incomplete, readjust coverage range or relocate the detector.

NOTE: *Walk Test procedure should be conducted, at least once a year, to verify proper operation and range coverage of the detector.*

9   Specifications

Detection Method	Double PIR Elements with optional Anti-masking feature
WA Detection Pattern	90º with 30 zones detection
Data Protocol	Freewave2 Two Way Protocol with unique serial ID
Modulation Type	GFSK
Frequency	868-869MHz / 916-917MHz
Events Transmission	Alarm, Anti-Mask, Tamper, Supervision, Low Battery
Supervision Time	7 min by default (configurable between 1 to 30 minutes)
Detection Range	Configurable from 3m to 12m
Installation Height	From 0.8m to 1.5m (Optimal 1.2m)
Range in open space	500m
Battery	4 Lithium Batteries 1,5V Type AA LR06
Battery life	Up to 5 years
Current Consumptions	Standby ~22 μA Transmit mode ~45 mA Receive mode ~24 mA Transmit Power: <14dBm
Tamper Switch	Front Cover and Wall Removal (Back Tamper)
Weatherproofing	All openings with gasket and sealed Protection against water and dust
RFI Protection	10V/m plus 80% AM from 80MHz to 2GHz
EMI Protection	6kV contact, 8kV air
Tamper Switch	Front Cover and Wall Removal (Back Tamper)
Temp Compensation	Yes, Dual slop temperature compensation
Alarm Period	2 sec (±0.5sec)
Warm up Period	30 sec (± 5sec)
LED Indicator	LED is ON during ALARM and TROUBLE
Operation Temp	-25ºC ~ +55ºC
Protection Degree	IP 65
Dimensions	200mm x 86mm x 80mm
Weight	500gr.
Directives	CE ① ☒ RoHS

* Specifications are subject to change without prior notice.

CROW LIMITED WARRANTY

(CROW) warrants this product to be free from defects in materials and workmanship under normal use and service for a period of two years from the last day of the week and year whose numbers are printed on the printed circuit board inside this product.

CROW's obligation is limited to repairing or replacing this product, at its option, free of charge for materials or labor, if it is proved to be defective in materials or workmanship under normal use and service. CROW shall have no obligation under this Limited Warranty or otherwise if the product is altered or improperly repaired or serviced by anyone other than CROW.

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