



# **Outdoor PIR + MW detector**

# INSTALLATION INSTRUCTIONS & USER MANUAL



1

CE

P/N 7102720 Rev. A

## $\bigcirc$

1		Ger	neral5	5
2		Fea	atures	5
3		Ass	embly description6	3
4		Det	ection Pattern	7
5	ecting mounting location	3		
6		Det	ector Installation	)
7	7 Terminal Block Connections			
	7.′	1	Wire Size Requirements11	1
8		Set	tings & Adjustments 12	2
	8.′	1	Detection beam direction 12	2
	8.2	2	Sensitivity and Range Adjustment12	2
	8.3	3	Pet immunity setting	3
	8.4	4	Indications setting 14	1
9		Оре	eration15	5
1	0	Т	est procedure	3
1	1	S	pecifications	7

### (4)

#### 1 <u>General</u>

The EDS-2000 is unique Passive Infra-Red and Microwave detector for outdoor and harsh environment applications.

The EDS-2000 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 tech hardware with highly sophisticated software, reducing false alarms alerts to zero.

It comprises of optics and advanced MW detection inside stylist rigid plastic body.

This special optics combined with MW Doppler sensor assures elimination of "false alarms" while maintaining high security standards for the detection of human intruders into protected area.

The detection sensitivity and range is controlled by potentiometer allowing fine tuning, so that the effective pattern will be set for every installation environment and protection site.

The EDS-2000 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.

#### 2 Features

- MW detection based on Doppler concept.
- N.O. & N.C. relays switched at the same time.
- Height installation calibrations free, from 1.8m to 2.4m (5.9 ft to 7.9 ft)
- Selectable Pet immunity up to 36kg (80 lbs)
- PIR sensitivity adjustment.
- MW intensity selection.
- Temperature compensation.
- Micro controller signal processing.
- Front and back tamper protection.
- Unique waterproof and seal plastic design.
- Detection Range: Up to 15m (49 ft)
- Detects human intruders walking or running.
- No maintenance required.
- High RFI/EMI Immunity.
- Protection from: direct sunlight, wind up to 30 m/sec, snow and rain, small animals, removing the top cover, housing pulling out or destruction

5

#### 3 Assembly description

The EDS-2000 is a robust yet small detector which includes big indication led prism that can be easily observed from long distance. Having a back metal bracket, the EDS-2000 can be easily mounted to walls using mounting screws or metal bands (supplied).



The EDS-2000 is combined of two detection elements:

- PIR element
- MW element

The following drawing shows all internal elements:



#### 4 Detection Pattern

The EDS-2000 has a 90° top view PIR and MW detection pattern with over 15m (49 ft) detection distance (when installed at 2.4m (7.9 ft) above the ground surface).



**TOP VIEW** 

Having MW movement detection combined with PIR detection beam, the EDS-2000 can differentiate between pets and human bodies and alert accordingly. By having both PIR detection beam and MW crossing an object it will be defined as intrusion,

causing an alarm. In case only MW detects motion and PIR does not, no alarm will be generated.

 $\left( 7\right)$ 

#### 5 Selecting mounting location

The installation of the EDS-2000 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 bracket provides EDS-2000 installation on a wall. The wall should be leveled.

Choose a location most likely to intercept an intruder according to detection pattern on page 8.

Avoid the following Installation Locations:

- Facing areas subject to rapid temperature changes.
- Wall angle of more than 10° from perpendicular line.
- Mounting at more than 10° Deviation from horizontal line.
- Do not install near direct source of heat or air gust.
- Clear all physical obstacles from the detection view.
   (e.g. Plants, laundries, etc.)
- Clear all light reflecting surfaces from the detection view, as well as swimming pools.
- Avoid installation on the following types of ground: Water, Sand and Metal.



#### NOTE:

Recommended installation height is 2.1m (6.9ft).

The PIR sensor detects motion crossing the beam; it is less sensitive detecting motion towards the detector.

The EDS-2000 performs best when provided with a constant and stable environment. In order to ensure suitable operation of the EDS-2000 type of ground should be one of the following: Asphalt concrete, Cement, Soil, Clay, Gravel or Grass (mown).

#### 6 Detector Installation

#### Important! Prior to installation, read both "Operation" and "Selecting the mounting location"

sections carefully.



9



 $\overbrace{10}$ 



**Terminal 1 - Marked "+" (+12V) -** Connect to a positive Voltage of 9.6 -16Vdc source (usually from the alarm CP)

Terminal 2 - Marked "-" (GND) - Connect to the ground of the CP.

**Terminals 3 & 4 - Marked "TAMPER" -** If a Tamper function is required connect these Terminals to a 24-hour normally closed protective zone in the CP.

If the top cover of the detector is opened or the detector is detached from installation wall, an immediate alarm signal will be sent to the CP.

**Terminal 5 - Marked "EOL" -** End of line – optional terminal for end of line resistors connections.

**Terminals 6, 7 & 8 - Marked "NC / C / NO" -** These are the output relay contacts of the detector. Connect to a normally closed or normally opened zone in the control unit. When an intruder is detected, alarm relays (N.C. and N.O.) will switch for 1.8 sec.

#### 7.1 Wire Size Requirements

Use #22 AWG or larger wires. Use the following table to determine required wire gauge and length.

Wire Length [m]	205	310	510	870
Wire Length [ft.]	800	1200	2000	3400
Wire Gauge [#]	22	20	18	16

#### 8 Settings & Adjustments

#### 8.1 Detection beam direction

The EDS-2000 detection beam direction is fixed. As a result, it is recommended to face the intrusion area with the detector.



#### 8.2 Sensitivity and Range Adjustment

There are 6 groups of environments for which different setting are required:

- <u>Low risk:</u> very stable environment without interference like parking garage, under roof parking space, playground, football court, service road, etc.
- <u>Risk:</u> Stable environment with some trees, boshes, flowerpots, planters.
- <u>High risk:</u> Unstable environment with different types of vegetation and grass and puddles.
- <u>Very high risk:</u> Unstable environment with winds and small pets, rats, mice, birds.
- <u>Noisy area:</u> Unstable environment with vegetation and water sources like swimming pool, lake, canal, weed as well as small pets like cats and rabbits.
- <u>Extremely Noisy area:</u> Very unstable environment subjected to wind, snow, rain, with vegetation, water and large pets like dogs.



The sensitivity adjustment is performed by setting a potentiometer and MW jumper as follows (using clock needle positioning):

Environment type	Potentiometer p	position	MW jumper po	osition
Low risk	4 o'clock		Н	•
Risk	12 ~ 3 o'clock		Н	• • •
High risk	3 ~ 4 o'clock		L	
Very high risk	12 ~ 3 o'clock		L	• •
Noisy area	9 ~ 12 o'clock		L	•
Extremely Noisy area	8 o'clock		L	

Note: Adjust sensitivity according to environmental conditions!

#### 8.3 Pet immunity setting

The EDS-2000 has a detachable Pet immunity filter. As such the Pet immunity level may vary between:

- 1. 36kg (80 lbs) with pet immunity filter assembled
- 2. 15kg (33 lbs) if no pet immunity filter is used.



The installer is to select the requested Pet immunity level.

The filter is to be installed according to the following orientation:

This side up!



(13)

#### 8.4 Indications setting

The EDS-2000 has 3 LEDs that each points at different indication:

- 1. Green LED indicates PIR detection.
- 2. Yellow LED indicates MW detection.
- 3. Red LED alarm indication (logic AND of both MW and PIR).

The installer has an option to control LEDs operation, using the LED control jumper, between "ON" and "OFF".



• Place the top cover to the base and close it using the bottom screw.



#### 9 Operation

Note! Connect the EDS-2000 to a positive Voltage output of 9.6 -16VDC source.

Use only a listed power limited source.

<u>The detector shall be provided with minimum of 4 hours of standby power from either a</u> <u>listed compatible control unit or power supply.</u>

- The detector is automatically operated once connected to power.
- The LED's start flashing one at a time (side to side) for 30 seconds during the warm-up period and after that it will turn off.
- At this time the detector is ready for operation.

#### 10 Test procedure

 Walk Test

 Make sure LED's control is set to "ON"

 Allow 30 seconds of warm up time.

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

 Start walking across the detection zone.

 Look at the LED's whenever motion is detected - all LED's are turned ON.

 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 sensitivity or relocate the detector.

 Once coverage is as desired the LED's may be disabled.

**<u>NOTE</u>**: Walk Test procedure should be conducted, at least once a year, to confirm proper operation and coverage of the detector.

### 11 Specifications

Detection Method	PIR AND MW			
Microwave Frequency	24.125 GHz			
Power Input	9.6 to 16Vdc			
Ourseast Durau	Active: 24mA (±5%)			
Current Draw	Standby: 21mA (±5%)			
Temp Compensation	Yes, Dual slop temperature compensation			
Alarm Period	2 sec (±0.5sec)			
	Form C (NC, NO, Common)			
Alarm Outputs	28Vdc 0.1 A with 10 Ohm			
	Two Switches			
Tamper Switch(s)	N.C 28Vdc 0.1 A with 10 Ohm Series protection resistors			
	Opens when cover is removed from unit's base			
Warm up Period	30sec (± 5sec)			
LED Indicator	All LED's are ON during ALARM			
RF Immunity	10 V/m plus 80% AM from 80 MHz to 2GHz			
Electrostatic Immunity	6kV contact, 8kV air			
Transient Immunity	1kV			
Operation Temp	-10°C ~ +50°C (14°F ~ 122°F)			
Dimensions	175mm x 70mm x 45mm (6.9" x 2.8" X 1.8")			
Weight	210gr. (0.5 lbs)			
	RTTE directive:1999/5/EC			
European directives	EMC directive: 89/336/EEC			
	Low Voltage directive: 73/23/EEC			
	RoHS directive: 2002/95/EC			
	EN300 440-2			
	EN301 489-1			
European standards	EN50130-4 +A1 +A2			
requirements:	EN61000-6-3+A11			
	EN60950-1			
	EN50131-1 / EN50131-2-4 / EN50130-5			
	47CFR part 15, subpart C, section 15.245			
USA & Canada	47CFR part 15, subpart			
	RSS210			
	ICES-003			

• Specifications are subject to change without prior notice.