

# User Manual SG-1



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## 1. General

**SensoGuard** was established by a team with more than 10 years of experience in seismic security systems.

**SensoGuard** develops innovative seismic security systems to various purposes by using cutting edge technologies.

**SensoGuard** obliges to values of innovation, quality, professionalism towards its customers and partners.

The purpose of this user manual is to describe the installation steps of the SG-1 detector.

**For any further questions please contact us:**

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## 2. About the SG-1 detector

The SG-1 is a seismic detector aimed to protect outdoor areas.

The SG-1 is installed 30-50cm deep (underground) and can be integrated with any standard security system.

The SG-1 detects any penetration (vehicle or footsteps) to the protected area and provides an early warning.

### 2.1. SG-1 components

- Seismic sensor
- Processing unit (the enclosure)





### 3.1. Terminal Wiring

Terminal #1 (DC+): positive supply voltage of 3-24Vdc

Terminal #2 (DC-): negative supply voltage

Terminal #3 (N.O1): for footstep detection

Terminal #4 (N.C1): for footstep detection

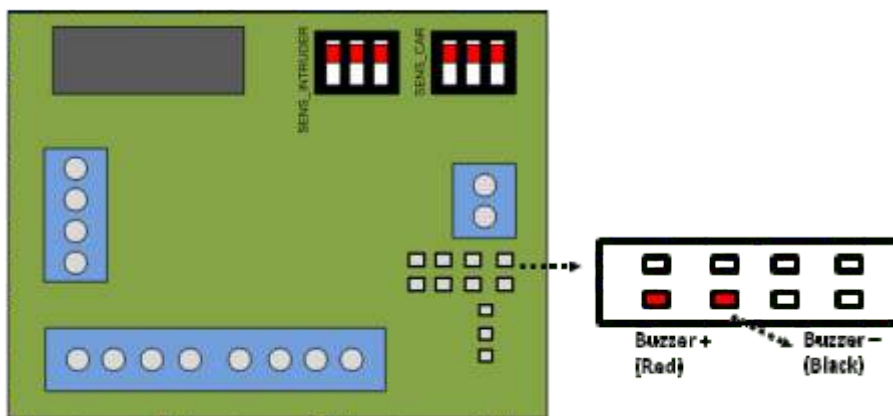
Terminal #4 (COM1): for footstep detection

Terminal #3 (N.O2): for vehicle detection

Terminal #4 (N.C2): for vehicle detection

Terminal #4 (COM2): for vehicle detection

### 3.2. Buzzer connection



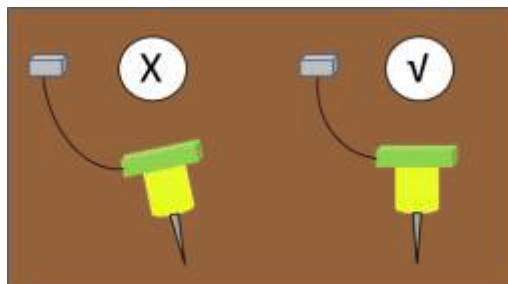
## 4. Installation

- 4.1. Verify that all of the detector parts are intact and not damaged in any way (broken, cracked or torn)
- 4.2. Dig a pit in the ground 30-50cm deep and about 25cm wide



- 4.3. Compress the sand at the bottom of the pit, remove stones and fix the sensor at the bottom of the pit straight (as shown in the picture below).

Verify that the sensor is tightly connected to the ground





**Placing the sensor in the pit**

4.4. Connect the sensor to the processing unit



4.5. Connect the sensor to the processing unit

4.6. Cover the sensor with soil, compress the soil above the sensor



- 4.7. It is recommended to put the processing unit in a 6 inch PVC pipe for clean and easy maintenance.  
Don't cover the PVC pipe yet.





- 4.8. Do a performance test to select sensitivity level (refer paragraph 5)
- 4.9. Close the PVC pipe and cover it with sand
- 4.10. **It is recommended to disconnect the buzzer**



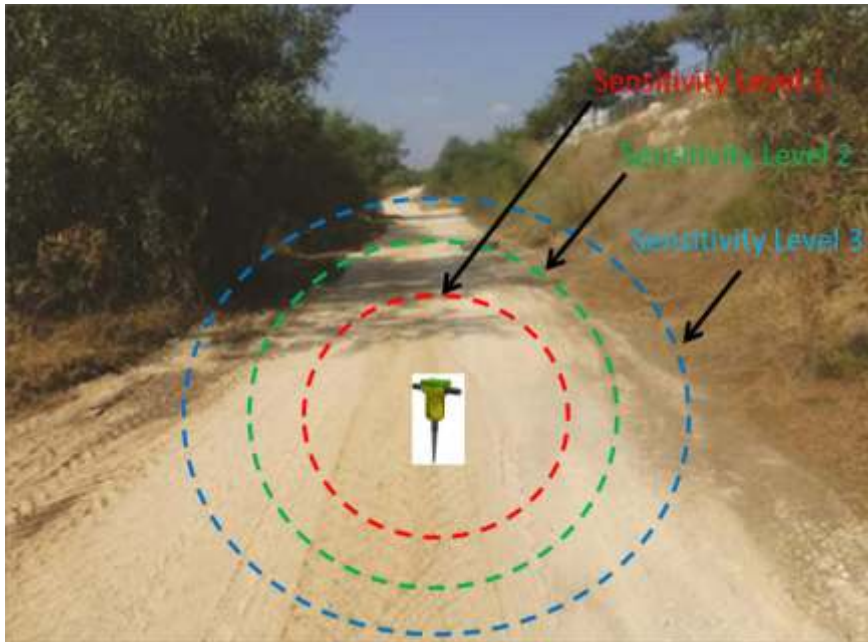
## 5. Performance test

**Comment 1:** please read paragraph 6 (sensitivity adjustment) before the performance test

**Comment 2:** The goal is to set the detector at the lowest sensitivity which covers the area of interest

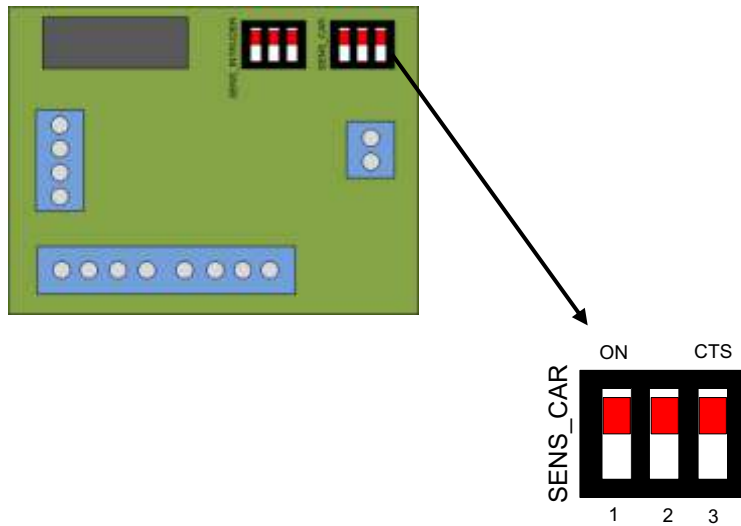
- 5.1. Open the enclosure of the processing unit, turn on the detector and wait for 5 minutes without movement for at least 10m from the sensor
- 5.2. Set the sensitivity level for footsteps (intruder) to the lowest level ("1").
- 5.3. Perform a walk test at the area of interest, if you hear the buzzer (and the led inside turn on) than alarm has been detected, if not set the sensitivity level one level higher, wait 1 minute (10m from the sensor) and repeat the test

Detection range for different sensitivity levels



**6. Sensitivity adjustment**

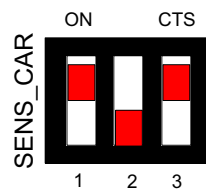
- You can set different sensitivity level for each threat (footsteps, vehicles).
- There are 8 sensitivity levels for each threat.
- The sensitivity levels are adjusted using the dip switches in the processing unit card



## Sensitivity levels

Sensitivity Level	Switch 1 position	Switch 2 position	Switch 3 position
0: threat canceled	OFF	OFF	OFF
1: lowest level	ON	OFF	OFF
2	OFF	ON	OFF
3	ON	ON	OFF
4	OFF	OFF	ON
5	ON	OFF	ON
6	OFF	ON	ON
7: highest level	ON	ON	ON

### Example for sensitivity level 5 for Car



## 7. Technical specifications

- Recommended Coverage area: 50sqm (about 7m\*7m)
- Detection range: up to 12m radius (360°), depends on area terrain
- FAR=1 per 2 weeks, PD=98%
- MTBF= 100,000 hours
- Input voltage range: 3-24Vdc
- Power consumption: 1mA@3V (3mWatt)
- Outputs: 2 relay outputs (dry contact) , Normally open / Normally close
- Temperature range: -30°C to +70°C
- IP rating: IP67
- Dimensions:
  - Processing unit: 82(W)\*84(L)\*57(H)
  - Sensor: 36(W)\*47(L)\*140(H)
- Weight: 412 grams