



# WLMAGDX MAGNETIC SENSOR

## Sentinel Radio Alarm Magnetic Sensor Instructions.

Used in models with WLDX Wireless Receivers

Before using the Magnetic Sensor, refer to the Sentinel operating manual for operating procedures.

### 1. DESCRIPTION:

The Sentinel Magnetic Sensor, WLMAGDX, is a basic probe that detects changes in the three dimensional space surrounding it. It is used to detect moving vehicles, among other things. This sensor is designed for portable use with a Sentinel Radio Alarm.

When a ferrous metal object, such as an automobile, moves through the magnetic field of the sensor, a change in the field is detected and a signal is sent to the magnetic sensor processor. The signal is processed and when the magnetic variation is significant enough, an alarm signal is sent via the wireless transmitter to the Sentinel Alarm. The Sentinel Alarm is activated and sends out a voice message on the radio to monitoring personnel. The probe will not detect ferrous metal if it is not moving.

To accommodate different applications, the sensitivity of the Magnetic Sensor is adjustable with the Sensitivity Control on the Processor. The processor is in a small water resistant case along with the wireless transmitter. The processor is active when the batteries are installed. The wireless transmitter is turned on by sliding the paper switch so that the battery contact is in the punched hole. The magnetic sensor is now active. It requires about 30 seconds to stabilize and is then ready to use.

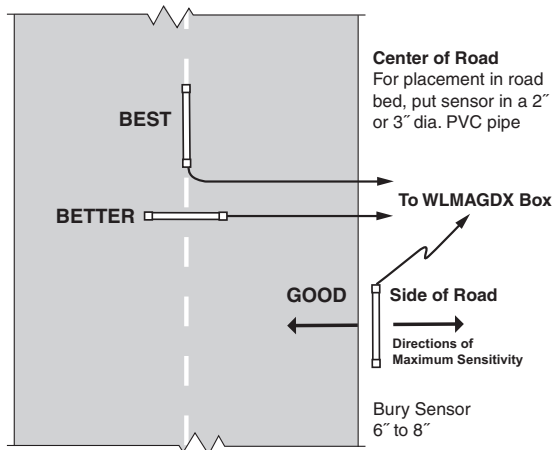
### 2. INSTALLATION:

#### PLACEMENT OF MAGNETIC SENSOR

**BEST** - Center of Driveway parallel to the flow of traffic. This allows for the lowest possible sensitivity setting and for vehicle detection on a driveway up to 28 feet wide, +/- 14 feet from the sensor.

**BETTER** - Center of Driveway crosswise to the flow of traffic.

**GOOD** - Edge of driveway parallel to the flow of traffic.



**Note:** If dealing with ferrous metal gates, several surface tests must be performed before the probe is buried. This is to make sure that there is no disturbance by gate movement.

## **2. INSTALLATION (Continued):**

### **Bury the Sensor/Probe**

Center of driveway

- a) Can cover a driveway up to 28 feet wide.
- b) Uses the lowest possible sensitivity setting.
- c) If this is a permanent installation under pavement, place probe in 2" or 3" PVC pipe that is sealed at one end.
  - i) Pipe should be pitched for drainage.
  - ii) Allows for retrieval of probe.

Along side of driveway

- a) Bury probe 6"-8" deep at edge of driveway
- b) Place Probe parallel to flow of traffic

### **Do Not Bury Sensor/Probe within:**

- 5 ft. of high power cables or transformers
- 20 ft. of radio transmitters
- 24 ft. of residential traffic
- 36 ft. of highway traffic
- 100 ft. of moving trains

## **3. Adjusting the Sensitivity and Operation:**

To access the magnetic sensor processor circuit board, to adjust the sensitivity, you must open the magnetic sensor processor electronics case. This will expose all the internal components, batteries, and the magnetic sensor processor. There is only one adjustment on the processor. It is located near the top center of the circuit board. The white dial is adjusted counter-clockwise for minimum sensitivity, clockwise for maximum sensitivity.

As a starting point, the Sensitivity Control is preset to mid-scale. Turn the Sentinel Ready Switch to Ready, wait 30 seconds for system to stabilize. Drive test vehicle past the Sensor/Probe. Alarm should be activated by the magnetic sensor. If not, increase the sensitivity as required. The sensor detects travel in either direction.

To verify the set up process, operate the Sentinel in the TEST mode. You will be able to hear your programmed messages as they are activated by the sensor.

By driving a vehicle past the sensor you can determine just how much sensitivity you need to reliably activate the alarm. This is usually a two person job. One adjusts the sensitivity while the other drives the vehicle. Once satisfied with the settings you can close the case. Locate the magnetic sensor case away from the sensor/probe in a concealed location as high as possible off the ground for maximum possible range.

For sensor programming and system operation refer to Sentinel Manual for Alarm Sensor Programming and Sentinel Set up Procedures

## **4. Battery Usage and Replacement**

The batteries are located inside the magnetic sensor case. The magnetic sensor operates with two sets of batteries. A pair of nine volt batteries, Duracell MN1604 alkaline or for longer operating time, 9 volt lithium cells, operate the magnetic sensor processor. They will last 6 to 12 months depending on usage. They are connected with battery clips. The wireless transmitter operates with two 8 volt lithium coin cells, CR2032 or equivalent. These are good for 3 years depending on how many transmissions the transmitter sends. The batteries are located in the coin cell holder on the wireless transmitter.

## 5. Cable Length

The cable length of the standard wireless magnetic sensor is 125'. The cable can be cut to a shorter length. The cable is attached to a terminal strip in the magnetic sensor case. It is not advisable to splice the cable once it is cut so take that into consideration before cutting the cable possibly too short for future use.

## 6. Placement of Magnetic Processor / Alarm Transmitter

Due to the effects of radio energy emitted by the Sentinel Radio Transmitter, it is necessary to keep the magnetic processor unit at least 20 feet from the Sentinel unit. This will eliminate interference with the magnetic sensor processor.

The WLMAGDX is sensitive to strong radio frequency fields. A typical VHF handy talkie may interfere with or trigger the sensor if operated within 20 feet of the WLMAGDX array (magnetic sensor and the sensor processor case). Do not operate this system near high power radio transmitters, i.e. AM broadcast stations or high power short wave (amateur) radio stations.

## 7. Wireless Sensor Transmitter

The wireless transmitter uses a digital mode to send the alarm signal to the Sentinel. It operates on common wireless alarm frequencies.

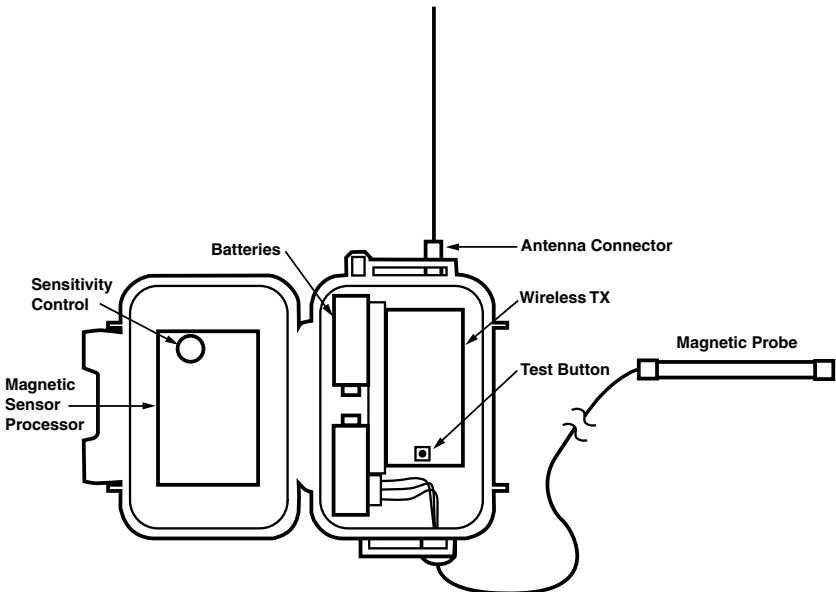
The range of the transmitter is Measured Range:

700 feet in open air, one quadrant;

500 feet minimum in open air (four quadrant test)

Wireless transmitter is derived from a Linear DXT31 transmitter. See information in Sentinel Series 2200 manual for WLDWDX wireless transmitter programming.

The magnetic sensor is derived from Sure Action P500 probe and WP5B processor.



**Magnetic Sensor Processor Case Layout**

## **8. Troubleshooting the Sentinel Magnetic Sensor:**

1. Check batteries.
2. Wire a 1K $\Omega$  resistor between the Black lead and the Red lead.
3. Allow processor to set up for 1.5 – 2 minutes.
4. Take a DC voltage reading on each of the probe leads. Digital voltage readings are positive in relation to negative of the battery.
  - i) Black to Neg. = 1.9 – 2.2 VDC
  - ii) Red to Neg. = 1.9 – 2.2 VDCBoth readings will be the same.  
The initial reading will be the most accurate.  
This reading will slowly drop as you take the reading.

**DO NOT APPLY POWER TO RED AND BLACK PROBE LEADS AS THIS MAY RESULT IN DAMAGE TO THE UNIT**

## **WARRANTY/DISCLAIMER**

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Product Changes: We reserve the right to discontinue a particular product or make technical design changes at any time without notice.



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