

SENSORZONE

User Manual

M4000001 Version 08/21



I Safety and Warnings

I.1 General

The SensorZone proximity warning system is supplied as an audible and/or visual alert system. It is not a protective device. The system does not initiate or perform any safety related functions.

The SensorZone proximity warning system is only to be used as a complement to existing Health and Safety measures and practices.

The use of SensorZone does not replace professional machinery safe operating processes and procedures.

It is recommended that all personnel on site receive training as to the operational procedures of the SensorZone system.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

I.2 Devices Containing Batteries

- ▶ Batteries maybe safely discharged between 20°C and 60°C (4°F and 140°F).
Note: This is the safe battery temperature rather than ambient temperature.
- ▶ Batteries should be stored at temperatures between 4°C and 27°C (40°F and 80°F).
Note: Higher storage temperatures increase the self-discharge rate and can reduce battery life.
- ▶ Batteries should never be stored at temperatures higher than 76°C (170°F).
- ▶ Batteries or devices containing batteries should always where possible be stored out of direct sunlight.
- ▶ **Damaged Batteries:**
 - ▶ If you suspect the unit has suffered impact or maybe damaged in any way DO NOT USE. The unit should be removed and quarantined.
 - ▶ DO NOT attempt to take the unit apart.
 - ▶ Follow standard operating procedures for the safe disposal of units containing batteries.

I.3 Antenna

All personnel should keep a minimum distance of 21cm (8 inches) from any antenna.

2 General Introduction

The SensorZone proximity warning system (PWS) is complimentary, and not a substitute, for existing safe systems and procedures of work.

SensorZone PWS uses advanced RFID technology, an existing and well established technology.

2.1 System Summary

SensorZone PWS generates a low frequency magnetic field, referred to as the exclusion zone, around the antenna. This zone maybe set at between 2m and 10m radius. The zone is nominally elliptical in shape.

Note: The exclusion zone can be established by a single antenna for small/medium sized vehicles or with two antenna for larger vehicles. Users should familiarise themselves with zones in use.

- ▶ A tag entering the range of the exclusion zone detects the magnetic field and replies to the base station. The tag will warn the wearer with two pulses of vibration.
- ▶ The base station initiates a visual and audible warning at the display and via external sounders and beacons to personnel in the vicinity.
- ▶ Every tag detection is recorded in the built in datalogger.



2.2 System:

- ▶ A base station.
- ▶ One or two external antenna.
- ▶ An in-cab display.
- ▶ External sounder and visual warning beacon (optional).
- ▶ SensorZone vibrating tag.



3 In-Cab Operation

It is recommended a copy of this page and the relevant display unit page are placed within the vehicle cab.

3.1 System Start Procedure

All machine operators are required to carry a tag.

1. The machine operator must be carrying a tag
2. Ensure no other tags are in the exclusion zone
3. Start the machine and the PWS system will automatically initialise
4. When the alarm/Beep sounds (approximately 3 seconds after startup) press the Acknowledge button.
5. If the Acknowledge button is not pressed within 15 seconds of the system start-up Beep then switch off and start the procedure again.

3.2 Troubleshooting

If the system does not initialise correctly the internal and external alarms will continuously sound indicating an unauthorised operating state.

If the system does not enter the operating state when the Acknowledge button is pressed then check the following

1. That there are no additional tags in the exclusion zone (these maybe on pedestrians, drivers in other machines nearby, or a tag left in the cab by a previous operator).
2. That your tag is functioning. Test your tag at a Tag Test station.

When the system is in operation, tags that enter the exclusion zone are automatically detected.

4 Systems fitted with a Standard Display

4.1 If a single tag enters the exclusion zone

- ▶ The in cab display will flash the “!” LED, the “**New Tag**” LED, and **Beep** once every second.
- ▶ If an external alarm Sounder/Beacon is connected to the Base Station both the alarm will sound and the beacon will flash.
- ▶ This will repeat until the operator presses the “**Acknowledge**” button.
- ▶ Once acknowledged the alarms will silence and the beacon will stop flashing, but the “!” LED will continue to flash until the tag leaves the zone.



4.2 If more than one tag enters the exclusion zone

- ▶ The “!” LED, the “**New Tag**” LED and **Beep** will indicate the number of tags that have entered the field
 - ▶ 2 Tags detected = 2 flashes and 2 Beeps
 - ▶ 4 Tags detected = 4 flashes and 4 beeps
 - ▶ 10 Tags detected = 10 flashes and 10 beeps
- ▶ To acknowledge more than one tag, the “**Acknowledge**” button must be pressed for each tag. A one-second pause is required between each press of the “**Acknowledge**” button.

4.3 Warning:

- ▶ 10 Beeps, the “**New Tag**” and “!” LED flashing indicates that the system has failed to detect a drivers tag.

5 Systems fitted with a Push Button Display

5.1 If a single tag enters the exclusion zone

- ▶ The push button display will flash the Alarm LED and Beep once every second.
- ▶ If an external alarm Sounder/ Beacon is connected to the Base Station both the alarm will sound and the beacon will flash.
- ▶ This will repeat until the operator presses the “Acknowledge” button.
- ▶ Once acknowledged the alarms will silence and the beacon will stop flashing.



5.2 If more than one tag enters the exclusion zone

- ▶ The **Alarm LED** and **Beep** will indicate the number of tags that have entered the field:
 - ▶ 2 Tags detected = 2 flashes and 2 Beeps.
 - ▶ 4 Tags detected = 4 flashes and 4 beeps.
 - ▶ 10 Tags detected = 10 flashes and 10 beeps.
- ▶ To acknowledge more than one tag, the “**Acknowledge**” button must be pressed for each tag. A one-second pause is required between each press of the “**Acknowledge**” button.

5.3 External Sounder/Beacon

If the GKD SensorZone Sounder Beacon is selected the following operating modes will apply

- ▶ System on = Beacon will flash slowly.
- ▶ Zone Incursion = Beacon flashes and alarm sounds.
- ▶ Incursion acknowledged = Beacon flashes slowly and no alarm sounding.



5.4 All Tag Users

- ▶ The tag has no user controls.
- ▶ Test your tag as recommended by your site management but not less than twice per day – see tag test below.
- ▶ It is preferably to wear your tag in a way where it can be visibly seen by others.
- ▶ Test your tag if you have any reason to think that it may have been damaged - dropped, exposed to extreme temperature or otherwise physically damaged.
- ▶ Carry your tag at all times – it can be fixed to your helmet, on a lanyard, or arm pouch.

If you enter an exclusion zone the tag will vibrate twice and the operator of the machine will be warned of your presence.

STOP, LOOK, LISTEN.

Identify the machine (remembering it maybe behind you) and move away from it.

An alarm on the machine may also sound.

Note: your tag may not vibrate if you re-enter the exclusion zone of the same machine within a short time. However, the operator will be warned and the alarms will sound.

5.5 Drivers

Once registered your tag will not be detected by the machine you are operating. It can still be detected by other machines.

You are always protected.

If you exit your machine, shut the machine down.

If you do not shut the machine down your tag will set off the alarm when you re-enter the exclusion zone.

6 Tag Test Unit

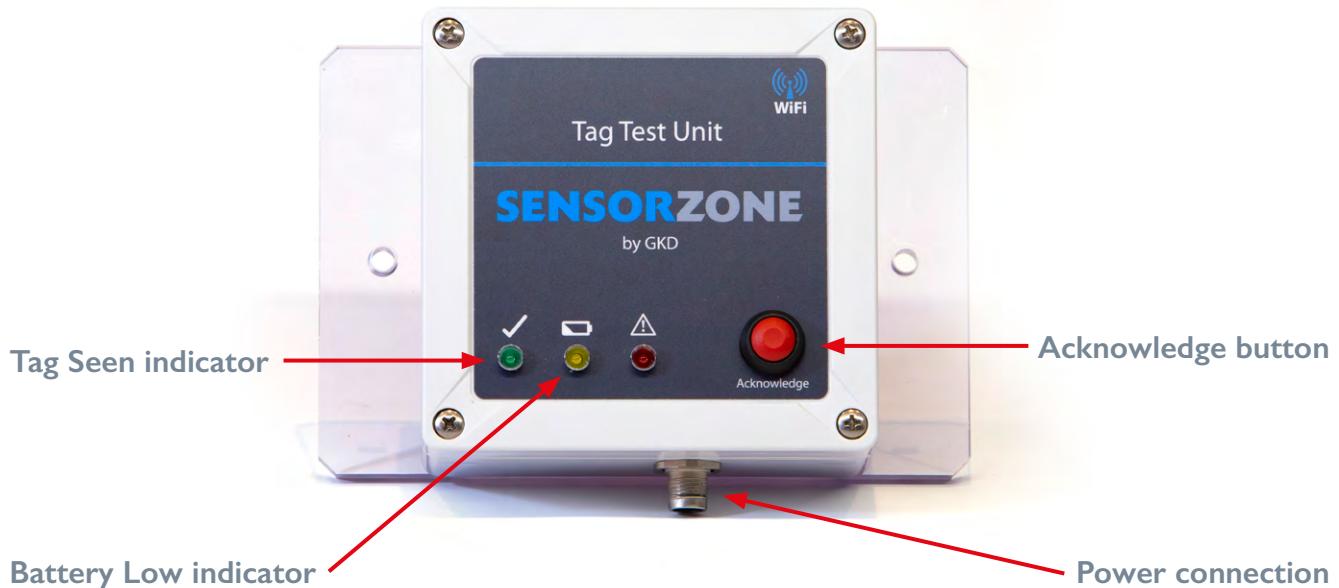
6.1 All tags must be tested daily

Tags should be tested at the beginning and end of all work periods and whenever entering the site.

Location:

Make sure you are aware of the tag test locations on your site.

The Tag Test Unit ensures the tags are operating correctly, and will alert the user to a low battery or inoperative tag



6.2 Tag Test Procedure:

- ▶ Place the tag on or near the Tag Test unit
- ▶ The unit will **Beep** to indicate the presence of a tag and the **“Tag Seen” LED** will light.
- ▶ Press the **“Acknowledge”** button to log the tag.

A short gap should be left between the next tag being tested.