

## In-Ground e-loop

The Inground Wireless Vehicle Detection System uses magnetometer sensors to detect the presence and movement of vehicles. These detections are transmitted to a nearby transceiver for gate activation.

The sensors are installed in the ground of entry or exit passages using sikaflex, contain a replaceable Lithium battery, and can withstand almost any vehicle. Gate or door controller must have a dedicated open input and auto-close function enabled.



## Functions / Features

### Lower power consumption

### 3-axis magnetometer for vehicle detection

- 8 Hz sampling rate
- Auto-calibration
- Exit/Entry detection mode

### Fast and simple installation

- Quick non-permanent installation

### Up to 6 year battery life

- Compact design
- Compatible with various gates

### Reliable radio communications with transceiver

- Reliable radio communication
- High security 128-Bit AES Encryption

### Added Radar functionality

e-Loop Radar® sensors can detect vehicles that are stopped above the e-loop. The added radar utilizes two-way radio communication protocol for reliable operation. Once the magnetometer sensor detects an oncoming vehicle, the transceiver relay will be latched and confirmation will be sent back to the e-loop. If the magnetic field drops below the set threshold, the radar will check if a vehicle is present. If no vehicle is detected, an unlatch command is sent to the relay, and the transceiver will send a confirmation to the e-loop. If the confirmation is missed, multiple attempts will be made to ensure safe operation. Radar settings can be adjusted using the e-diagnostics remote. Settings that can be changed include; Dead zone, sensor distance, sensitivity, magnetic field release level, confirmation mode.

## Radio Specifications

|                      |   |
|----------------------|---|
| Frequency            | 433.39 MHz  |
| Modulation           | FSK   |
| Bitrate              | 9.6 kbps  |
| Bandwidth            | 250 kHz   |
| Antenna Type         | PCB   |
| Nominal Output Power | 10 dBm  |
| Receive Sensitivity  | -126.2 dBm  |
| Security             | 128-Bit AES Encryption  |
| Spurious Emissions   | <ul style="list-style-type: none"> <li>• 30 - 1000 MHz: &lt; -56 dBm</li> <li>• 1 - 12.75 GHz: &lt; -44 dBm</li> <li>• 1.8 - 1.9 GHz: &lt; -56 dBm</li> <li>• 5.15 - 5.3 GHz: &lt; -51 dBm</li> </ul> |

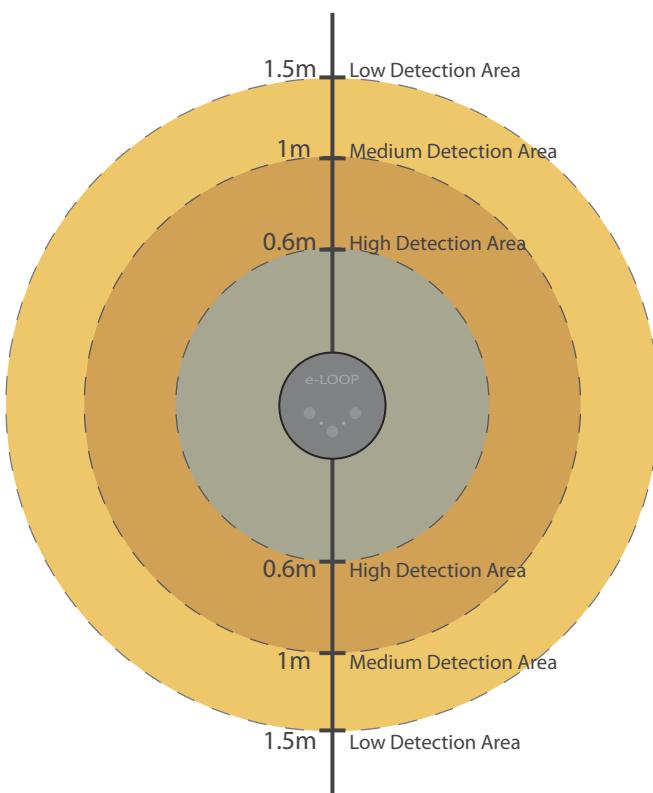
## Compliance

|        |  |
|--------|--|
| Safety | Tested to CE Approval  |
| EMC    | <p>Tested to:</p> <p>EN 301 489-1 V2.2.3 "ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard for ElectroMagnetic Compatibility"</p> <p>Including</p> <p>a)_Emissions to EN 55032 "Electromagnetic compatibility of multimedia equipment".</p> <p>b)_Transmitter and receiver test to EN 300 220-1 V3.1.1 'Short Range Devices (SRD) operating in the frequency range 25MHz. to 1000MHz; Part 1: Technical Characteristics and methods of measurement."</p> <p>c)_Immunity Tests to EN 301 489-1</p> |

## Power, Physical and Environment

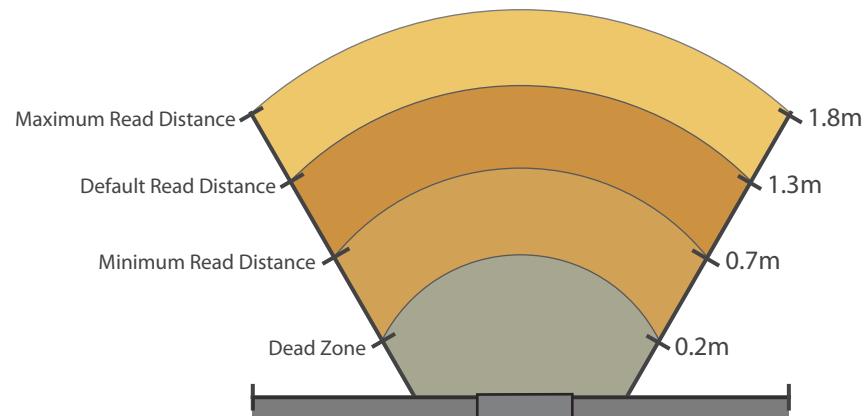
|                  |   |
|------------------|---|
| Power            | 1 * 3.6 V 14500ma   |
| Dimensions       | 88*88*55mm  |
| Weight           | 300g  |
| Environment      | <ul style="list-style-type: none"> <li>• designed for above ground mounting</li> <li>• IP68 ingress protection</li> </ul> |
| Operating Temp   | -20° to 80° C   |
| Standby Power    | 14µA  |
| Activation Power | 50mA  |

### Magnetometer Detection Areas



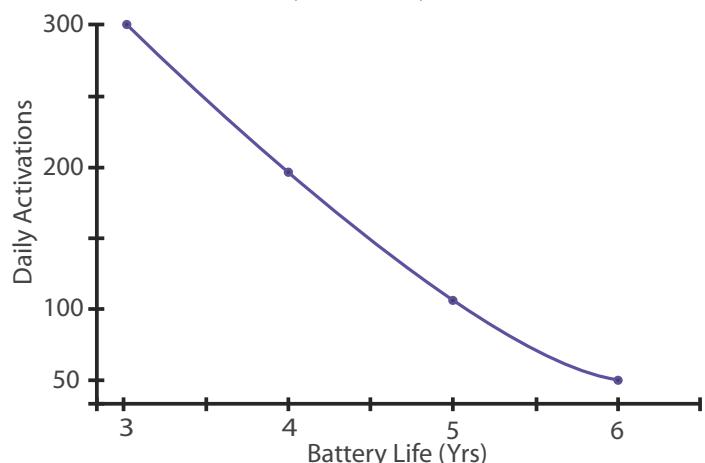
Varying magnetic field detection zones. The grey area depicts a 0.6m high sensitivity detection area surrounding the e-loop, suitable for the majority of vehicles. The dark colour area depicts a 1m medium sensitivity detection area surrounding the e-loop, suitable for most vehicles. The light colour area depicts a 1.5m low sensitivity detection area surrounding the e-loop, which is only suitable for some vehicles.

### Radar Read Distances



Radar detection range. Spanning from a 60° FOV from the e-loop, these are the range zones. The gray area depicts the dead zone, in which objects cannot be detected. The Minimum read distance is 0.2m. The default read distance is 1.8m, and the Maximum read distance spans up to 2m.

### Battery Life vs Daily Activations



Note: Battery life is dependent on many factors, including daily activations, time used per activation, radar range and external conditions.