BT510 Sensor Installation Guidelines

BT510 Multi-Sensor

Application Note *v1.0*

1 INTRODUCTION

The Sentrius™ BT510 Multi-Sensor combines multiple sensor types into a single IP67-rated housing: temperature, proximity, accelerometer, and magnetic sensors. This magnetic sensor is useful for registering the open/closed status of doors and windows, or any other applications that require the proximity status of a moving or sliding object to a fixed location. When the BT510 is moved out of alignment with the magnet, it registers as deactivated (open), and when returned to position, it registers as activated (closed).

For the magnetic sensing to function correctly, the magnet must be installed within the correct alignment and distance tolerances in relation to the BT510 sensor. These distances vary based on whether the mount surface is metallic or non-metallic.

This application note details the location on the BT510 of the magnet sensor, as well as the supported distance and orientation between the BT510 sensor and the magnet on metallic and non-metallic surfaces. It also provides mounting instructions for the BT510 sensor.

2 BT510 – MAGNET SENSOR LOCATION

The location of the magnetic sensor is indicated by the electrical symbol for a magnetic reed switch, and appears on the right of the face of the BT510 as shown in Figure 1.

Figure 1: Location of magnetic switch

The magnet must be aligned parallel with the side of the sensor, to the right of the symbol circled, for the magnet to trigger the sensor. The appropriate placement and tolerances are detailed in the next section.

3   MAGNET AND SENSOR ORIENTATION

The BT510 must be oriented in parallel next to the magnet backing with the magnet oriented on the right side of the BT510 face. When mounting, place the magnet such that it is next to the BT510 when the door or other fixture is in the closed position. The sensor registers as "open" when it is moved out of the influence of the field of the magnet.

3.1   Horizontal Orientation

Figure 2 illustrates the proper horizontal placement between the BT510 sensor and the magnet in the closed position, as well as the allowable tolerances of distance between the sensor and the magnet.

Note that the magnet must be located closer to the sensor when mounted on metallic surfaces in order to successfully activate the sensor. The magnet must also be aligned with the vertical centerline of the sensor, as shown below, in order to be in optimal range for detection.
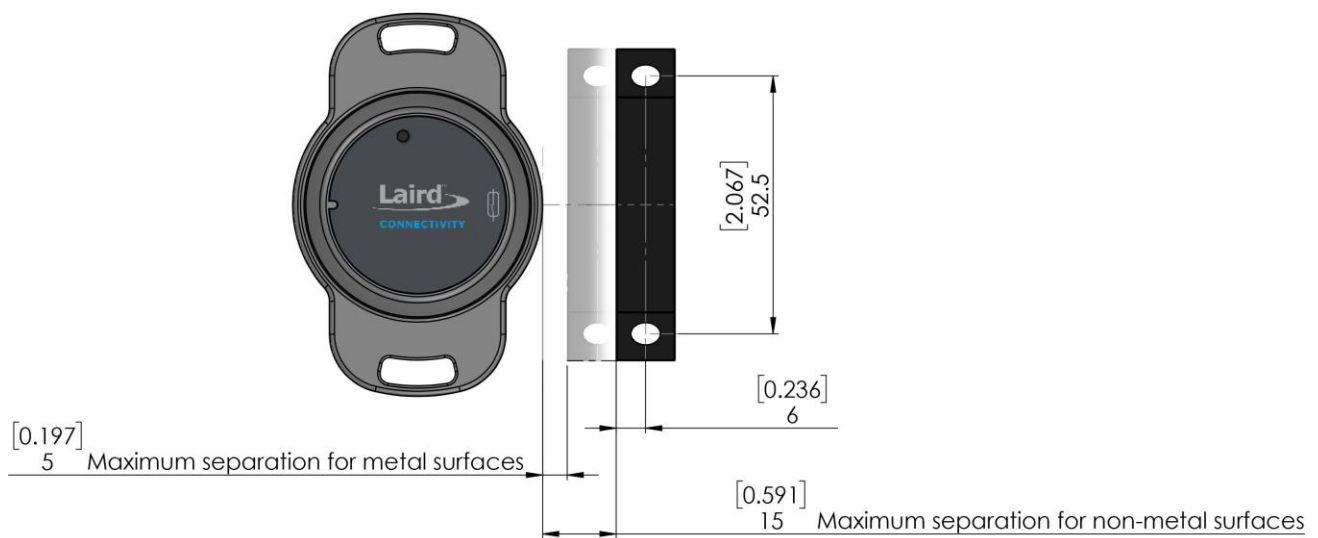

Figure 2: Sensor and magnet horizontal orientation for metallic and non-metallic surface mounting

- **Non-Metallic Surfaces**: Distance must be no greater than 15 mm (0.591 inches)
- **Metallic Surfaces**: Distance must be no greater than 5 mm (0.197 inches)

3.2 Vertical Orientation

Figure 3 and Figure 4 illustrate the proper vertical placement between the BT510 sensor and the magnet in the closed position, as well as the allowable tolerances for operating distance between the sensor and the magnet.

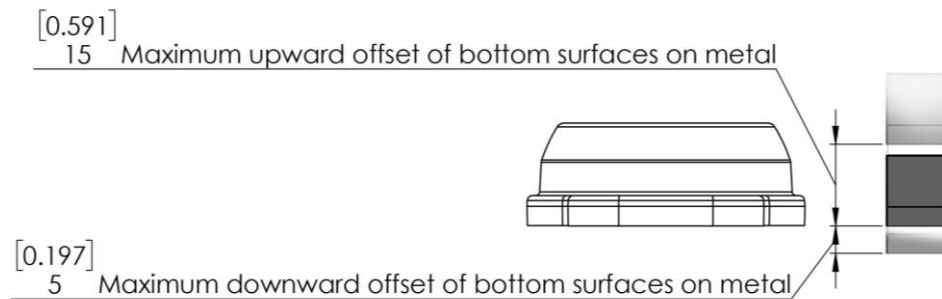### 3.2.1 Vertical Orientation on Metal

Figure 3: Operating range upward and downward offsets on metal surface

- **Upward offset**: Distance must be no greater than 15 mm (0.591 in)
- **Downward offset**: Distance must be no greater than 5 mm (0.197 in)

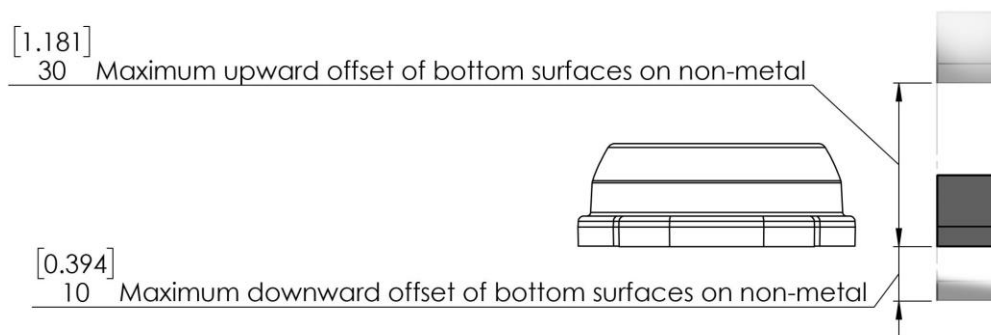### 3.2.2 Vertical Orientation on Non-Metal

Figure 4: Operating range upward and downward offsets on non-metal surface

- **Upward offset**: Distance must be no greater than 30 mm (1.181 in)
- **Downward offset**: Distance must be no greater than 10 mm (0.394 in)

4 MOUNTING TEMPLATE

The following mounting template is included to demonstrate the measured distance between the top and bottom mount holes of the BT510 sensor.
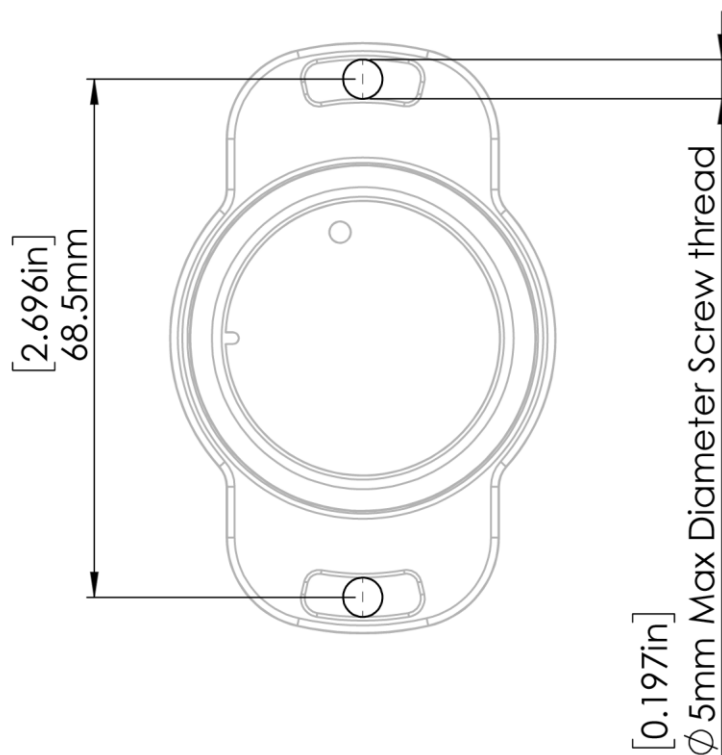
- ▪ **Vertical Distance Between Screws**: 68.5 mm on center (2.69 in)
- ▪ **Screw Thread Diameter:** 5 mm maximum (0.197 in)

5 REVISION HISTORY

Version	Date	Notes	Contributor	Approver
1.0	17 Feb 2021	Initial Release	Rich Walters	Chris Boorman

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