

## 2.6 System limitations

The Blind Spot Detection System does have limitations. Conditions such as severe weather or debris buildup on the sensor areas may limit vehicle detection.

Other situations that may limit Blind Spot Detection System include:

- When the car enters tunnels or other places where the satellite signals cannot be received, the BSD and RCTA functions will fail.
- Certain maneuvers of other vehicles as they enter and exit the blind spot zone.
- Vehicles passing through the blind spot zone at very fast rates.
- Several vehicles forming a convoy and passing through the blind zone.

### False Alert

It is possible that the Blind Spot Detection System will trigger an alert even though there is no vehicle in the blind spot zone. If your vehicle is towing a trailer, the sensors could possibly detect the trailer and trigger the Blind Spot Detection System. The Blind Spot Detection System can detect objects such as; construction barrels, guard rails, lamp posts, etc. Occasional false alerts are normal.

1. The system cannot detect a target under the conditions below :

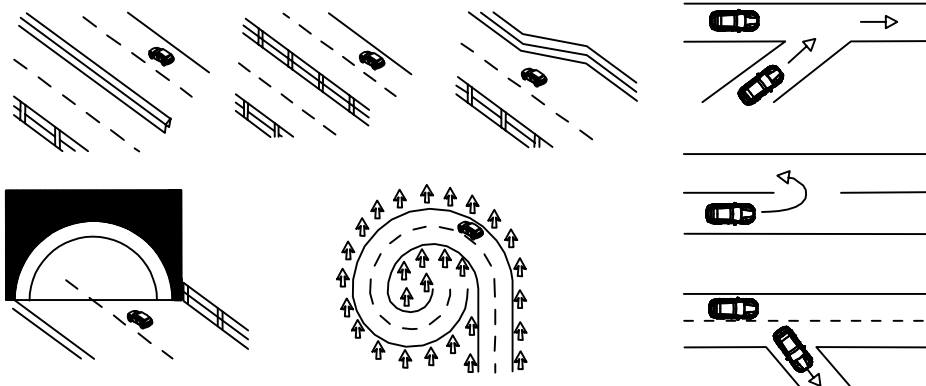
- The vehicle you are driving is passing vehicles in the opposite lanes.
- The adjacent lane of the vehicle wants to speed up and it is beside you, not behind.
- The adjacent lane is too wide to detect. The range is setup according to the standard highway lanes.

2. The system will not trigger the BSD alert or may provide a delayed alert:

- The vehicle changes lanes (such as, from the third lane to second lane)
- When the vehicle is driven on a steep slope
- Through the top of the hills or mountain
- In a sharp turn through an intersection
- When there is a height difference between the driving lane and adjacent lanes

3. If the road is too narrow, it may detect the two lanes.

4. The warning LED of the BSD will illuminate due to a stationary object, such as: guardrail/concrete wall, tunnels, green belts)





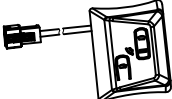
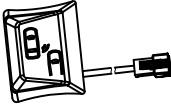


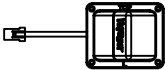
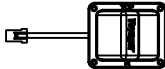



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**VBSD1A**

**BSD manual**

1. Installation

1.1 Part list

No.	Name	Qty	Diagram
1	Control box	1	
2	Main Cable	1	
3	Left warning light	1	
4	Right warning light	1	
5	Buzzer	1	
6	Terminal resistor	1	
7	Left sensor	1	
8	Right sensor	1	
9	Cable tie	40	
10	Screw	8	
11	Manual	1	

2.4 Trouble shooting

Power on, the left & right warning lights blink at 2 sec intervals	Poor connection	Check the harness connection between sensor and controller according to the wiring diagram
	Sensor damaged	Replace it
Buzzer not working	Poor connection	Check the harness connection between buzzer and controller
	Volume set to OFF	Check the volume adjust switch
	Buzzer damaged	Replace it
Warning light not working	Poor connection	Check the harness connection between warning light or power cable and controller
	Warning light damaged	Replace it
Left & right turning light is triggered, left and right warning light doesn't blink	Poor connection	Check the harness connection of left and right warning light according to the wiring diagram
Target vehicle coming from one side, but the other side warning light was lit	Left and right warning light connected contrarily	Check the harness connection of left and right warning light according to the wiring diagram

2.5 Installation Notes

- 1. Once installed, check for proper functionality before using the system.
- 2. Sensors need to be clear of objects to perform properly; remove any snow, ice, dirt, etc. from Sensors.
- 3. False alarms may happen, this is normal and does not require repair.

Safety Information:

THE SYSTEM IS DESIGNED TO ASSIST YOU IN DETECTING OBSTACLES AND WILL NOT REPLACE SAFE DRIVING PRACTICE.

WARNING:

To help avoid injuries, NEVER use the VOYAGER VBSD1A Blind Spot Detection as a replacement for checking the interior and exterior mirrors and looking over your shoulder before changing lanes. The Blind Spot Detection System is not a replacement for careful driving.

The Blind Spot Detection System is a tool to assist you in detecting vehicles in the blind spot caused by the limited viewing angle of the mirrors installed in your vehicle, it may not operate as intended based on a variety of external factors and it is not intended to operate in connection with your vehicle's notification system.

For example; the user will NOT receive a warning on the vehicle's instrument/control panel if the VBSD32 loses power, so it is imperative that the user relies on safe and lawful driving practices. DO NOT solely rely on the VBSD1A Blind Spot Detection System!

2.2.3 Self-diagnosis

When the system is powered on, it will enter a self-diagnosis test and will provide the Driver the test information shown below, via the LEDs:

- (1) Normal operation: The Left and Right LED indicators will illuminate for 2 seconds and then turn off.
- (2) If a Sensor is not connected properly, or is functioning abnormally, the corresponding LED will blink for 10 seconds at a frequency of 0.5Hz and the monitor will display an "X" indicating the Sensor is not functioning properly.

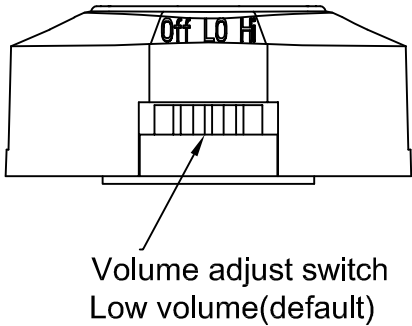


(3) If the self-diagnosis test has failed, the system will not function properly until the issue found is corrected.

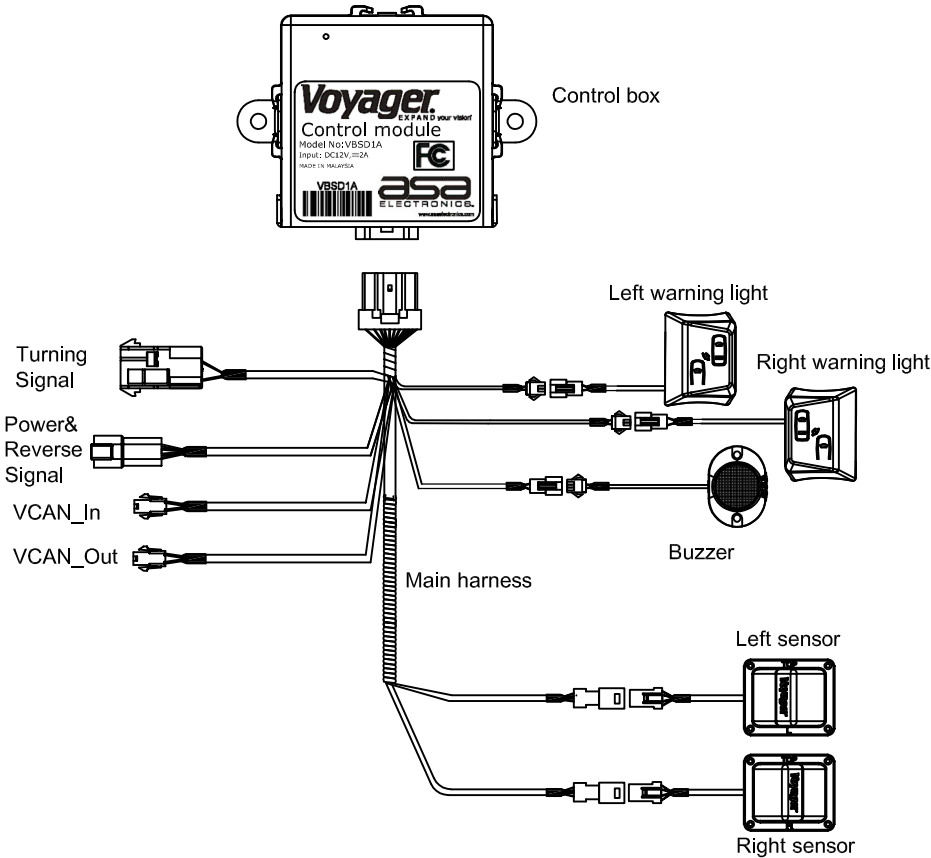
2.2.4 Blind Spot Test Mode

Upon entering the Blind Spot Test Mode, the user will be instructed to cause a 'Warning' instance associated with each indicator and observe that the proper indicator is illuminating. The User will need to cycle Power via the Vehicle's Ignition/Key Switch to exit the Blind Spot Test Mode.

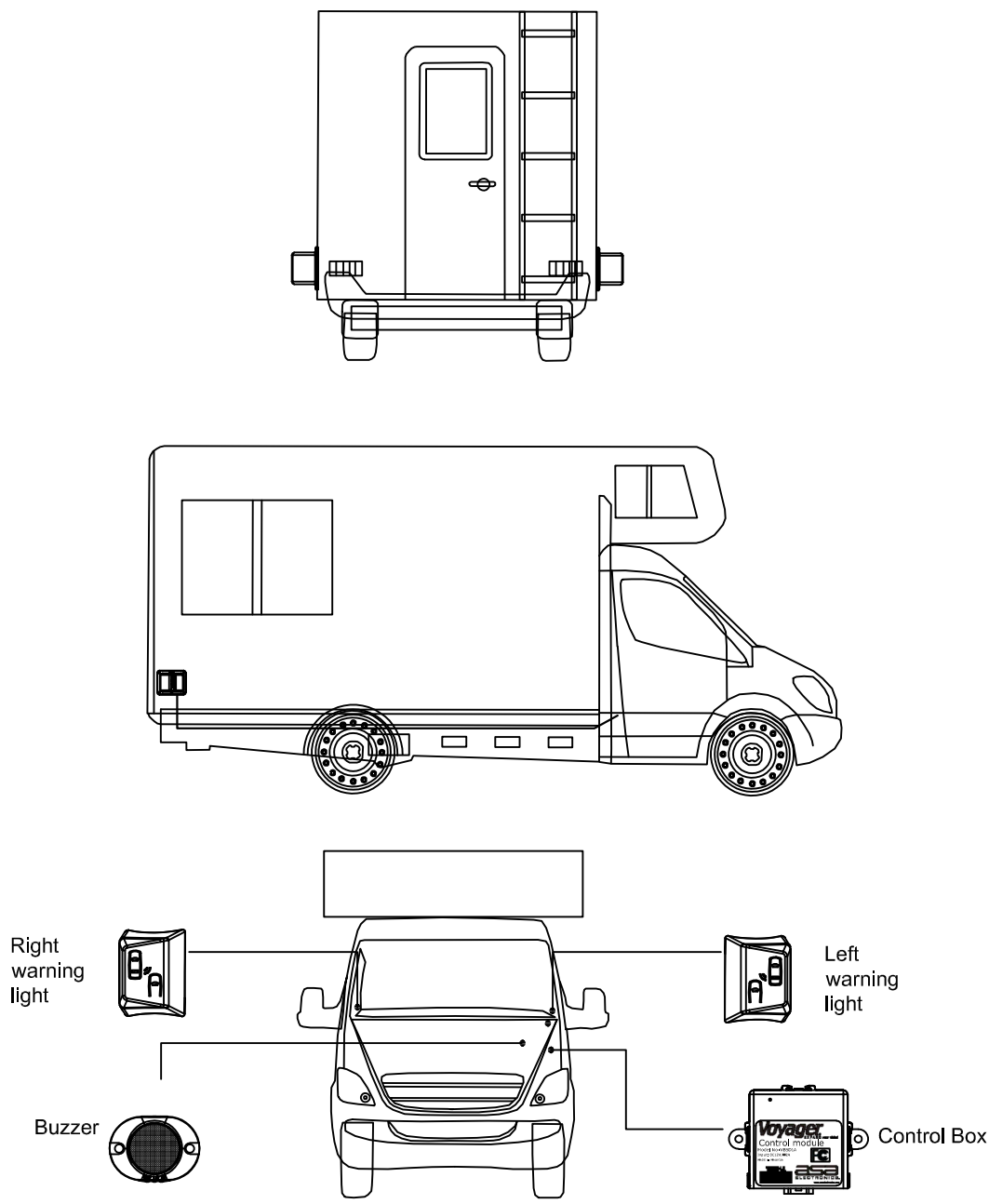
2.3 Buzzer volume adjustment



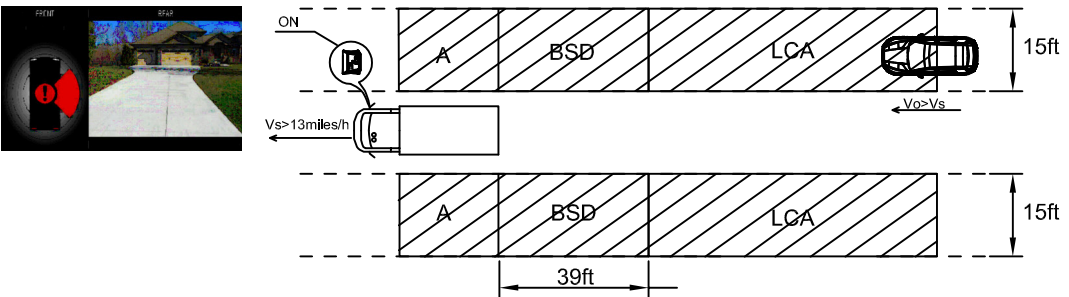
1.2 Wiring diagram



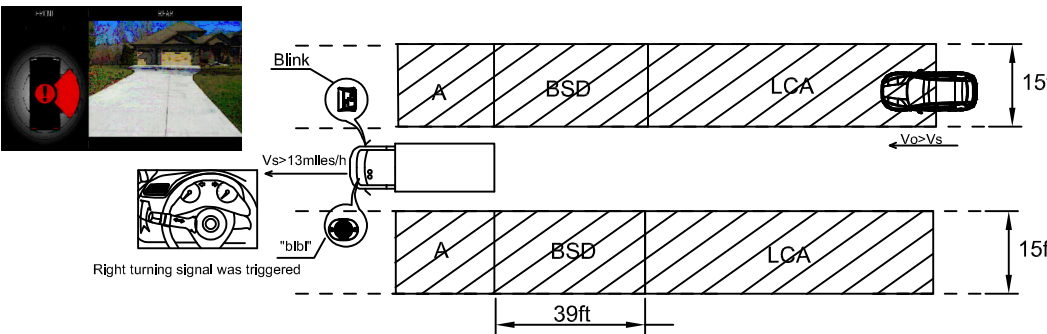
1.3 Installation



e. The warning light will illuminate if the target vehicle in the LCA detection area will overtake the vehicle within 5 seconds.

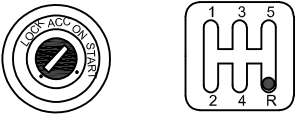


f. If an LED is illuminated and its corresponding turn signal is triggered, the LED will blink and the Buzzer will provide an audible alert/beep.



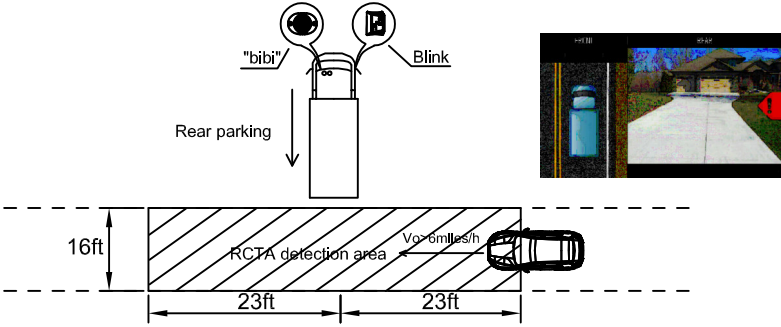
2.2.2 Rear Cross Traffic Alert (RCTA)

(1) Start condition:

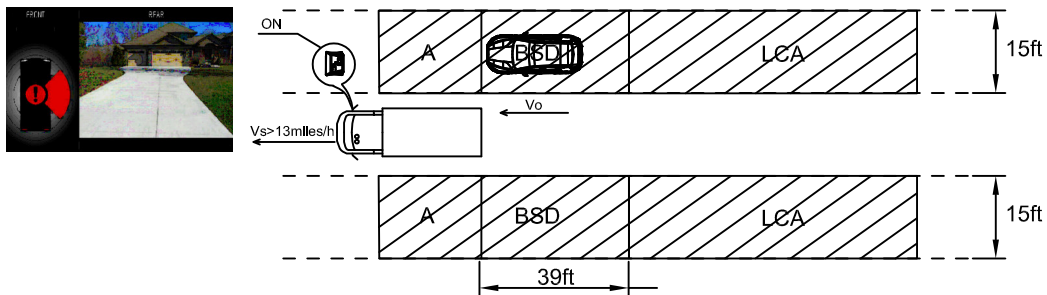


(2) Basic function

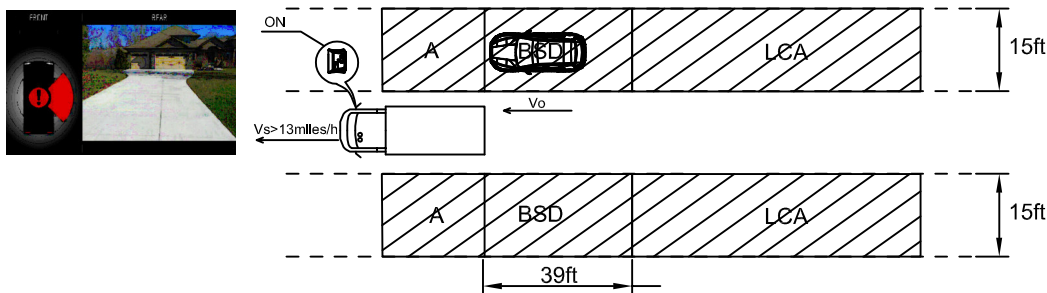
The Sensors detect any object that enters the monitored area (shown below); the system provides an alert when the vehicle is in Reverse.



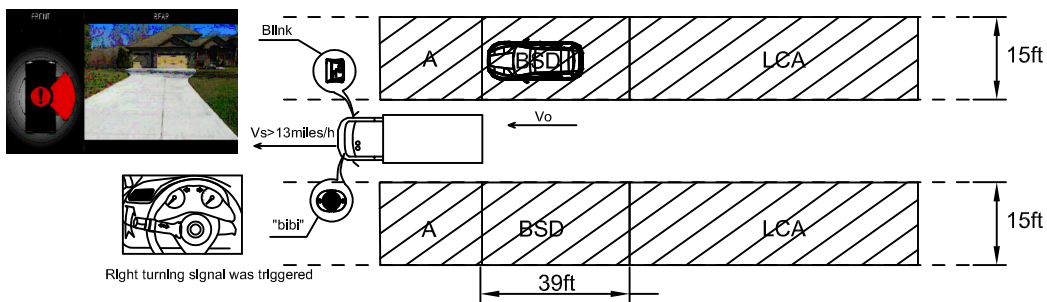
b. The warning light will illuminate if there's a stationary target vehicle, relative to the moving vehicle's speed, ( $V_o=V_s$ ) in BSD detection area.



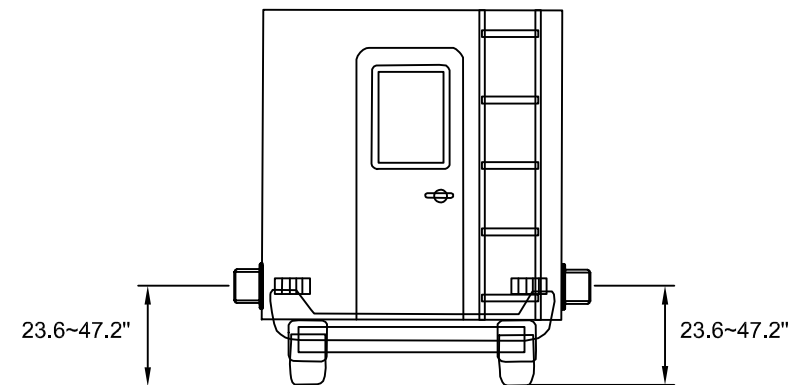
c. The warning light will illuminate if there's a slower target vehicle, relative to the moving vehicle's speed, ( $V_s-V_o<7\text{miles/h}$ ) in BSD detection area.



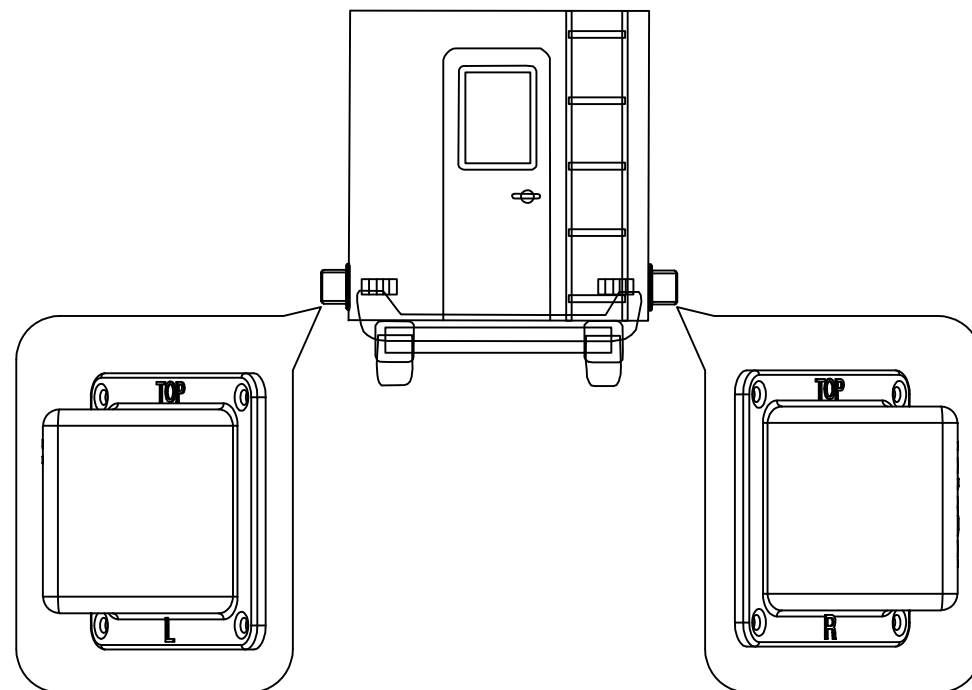
d. If an LED is illuminated and its corresponding turn signal is triggered, the LED will blink and the Buzzer will provide an audible alert/beep.



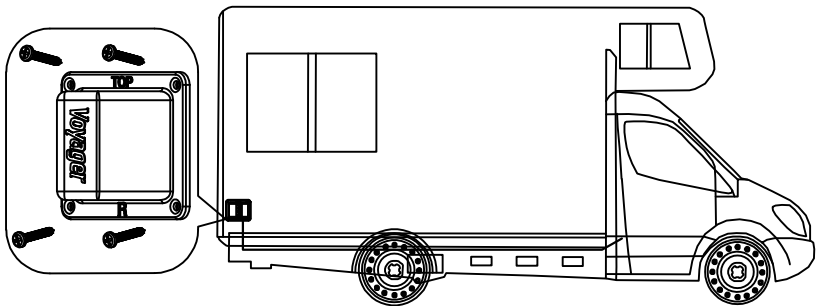
## 1.4 Installation instruction



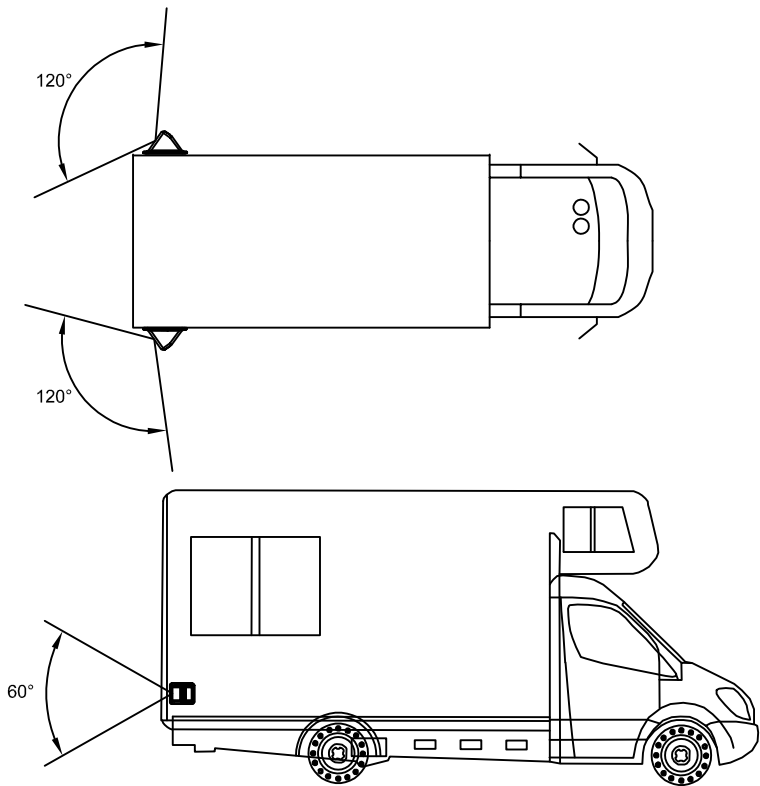
Please be aware of TOP mark on each sensor.



Use 4 screws to affix the Sensor to the vehicle once the correct position is found and use Cable Ties to tie down Harness wiring. Note: Make sure that the Sensor's orientation is parallel to the vehicle's body.



\*Make sure there are no objects in the Sensors' detection area.



1.5 Checking

- 1.Once installed, ensure all connections are properly connected.
- 2.Test that all the functions are operating properly.

2. User manual

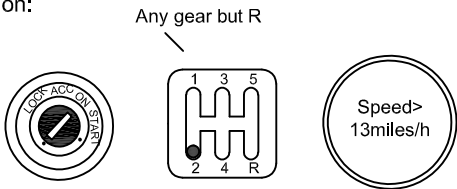
2.1 Technical parameters

Operating Voltage	DC9-16V
Current Consumption	< 500mA@12V
Working Temperature	-40℃ - + 80℃
Storage Temperature	-40℃ - + 85℃
Frequency	24.00-24.25Ghz
Warning Mode	Warning Lights/Buzzer
Sensor waterproof grade	IP66
Modulation Mode	MFSK
Antenna type	1TX,2RX
Vertical Angle	30°@-6db
Horizontal Angle	70°@-6db
Distance Ability	98ft@108ft*2 target

2.2 System function

2.2.1 BSD function

(1) Start condition:



(2) Basic function

The Sensors detect any object that enters the monitored area; the system provides an alert for potential risk.

Note: As sensors cannot detect objects in the area labeled 'A' (shown below), alerts in this area are based on a time delay-function.

a.The warning light will illuminate if there is an approaching target vehicle( $V_o > V_s$ ) in BSD detection area.

