

Smart Radar System

Owner's Guide

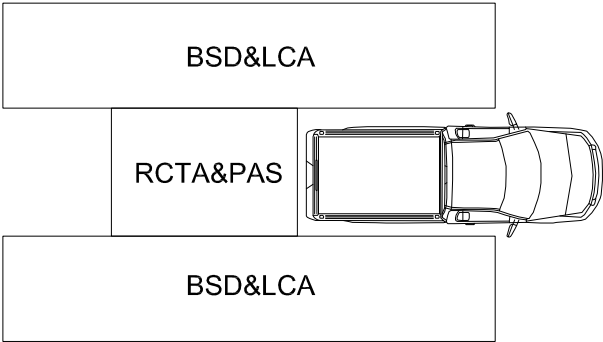
WARNING

To help preventing injuries, never use the smart radar system as a replacement for checking the surrounding pedestrians, cyclists and vehicles. The Object Detection System is not a replacement for careful driving.

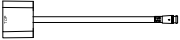
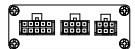
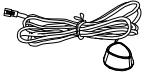
1.System overview

Smart Radar System is mainly used to detect and pre-alert of obstacles with potential collision risks behind the vehicle. The system functions mainly include:

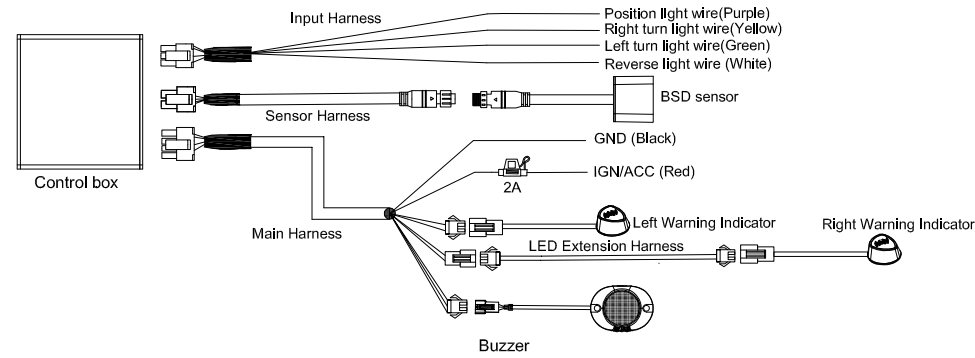
- a.Blink Spot Detection Function(BSD)
- b.Lane Change Assistant Function(LCA)
- c.Rear Cross Traffic Alert Function(RCTA)



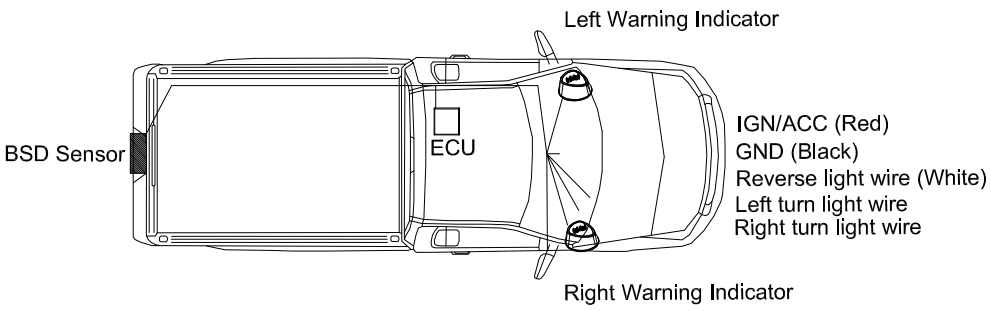
2.Kit Contents

NO.	Item	QTY.	Image
1	BSD Sensor	1	
2	Sensor Bracket	1	
3	Controller	1	
4	Buzzer	1	
5	Input Harness	1	
6	Main Harness	1	
7	LED Indicator	2	
8	LED Extension	1	
9	Sensor Harness	1	
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3. Harness Layout

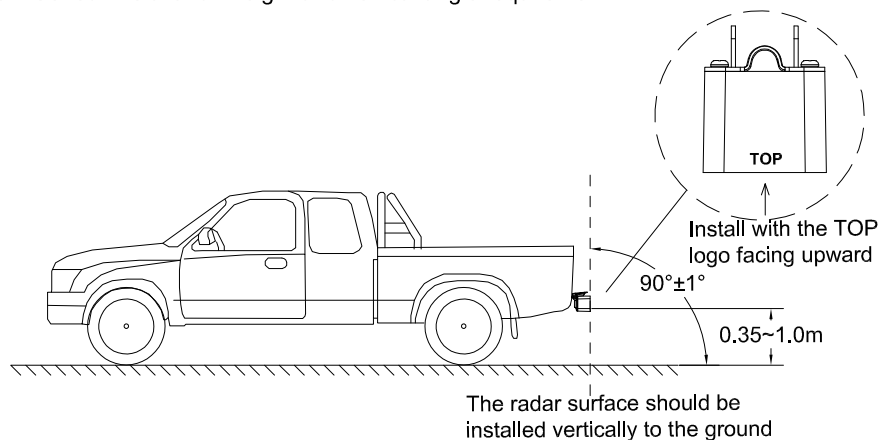


4. System Layout

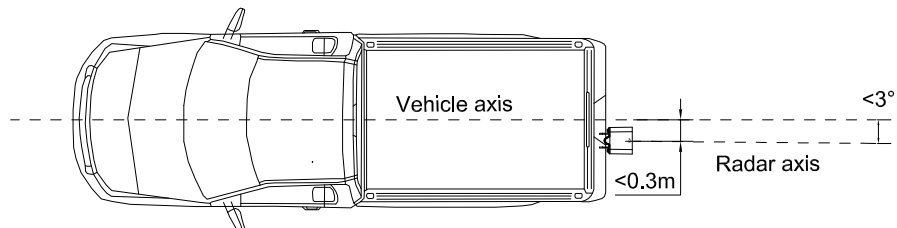


5. Installation

5.1 Sensor installation height and vertical angle requirement:



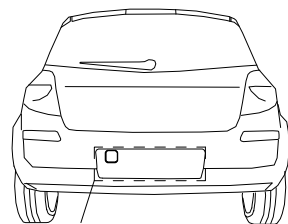
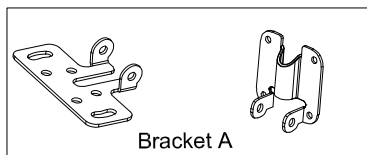
5.2 Sensor horizontal installation angle requirement:



- The radar axis should be installed parallel to the vehicle center axis, with an error of less than 3° .
- The deviation between the radar axis and the vehicle center axis should be less than 0.3m.

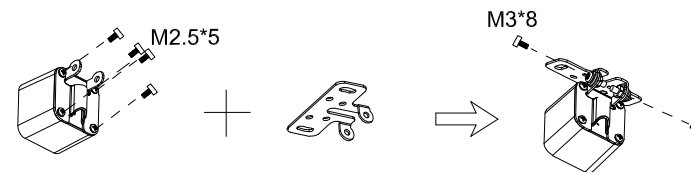
5.3 Reference installation A

This bracket is suitable for installing the sensor near the rear license plate of the vehicle.



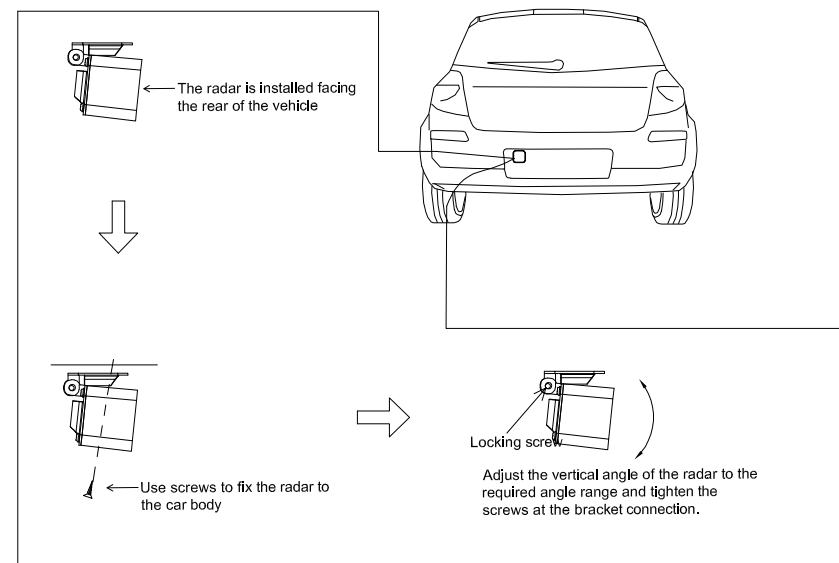
5.3.1 Installation steps for reference

- Assemble the sensor and bracket according to the following diagram.

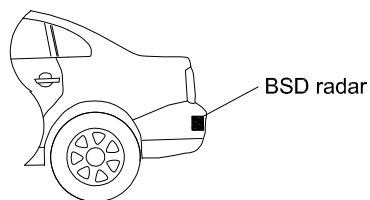


Bracket A assembly

- Install the sensor to a suitable position above the rear license plate. After confirming that the horizontal installation angle meets the requirements, tighten it with screws.



5.4 Reference installation B

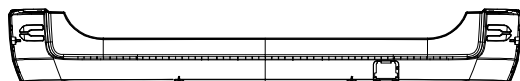


The radar can be mounted near the central position on the inner side of the rear bumper. To minimize the impact of bumper obstruction on the radar, the material and shape of the bumper shall meet the following requirements:

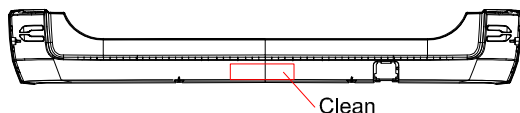
- The bumper shall be flat in shape.
- Recommended materials for the bumper include PC, PP, ABS, etc. Metallic paint is prohibited from being applied to the bumper surface.
- No other vehicle accessories (e.g., spare tires) shall block the outer side of the bumper.

5.4.1 Installation steps reference

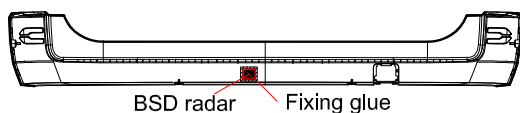
- Remove the vehicle's rear bumper.



- Clean the area near the center on the inner side of the rear bumper with an alcohol pad and allow it to air dry completely.



- Affix the radar to the rear bumper using double-sided adhesive tape and ensure that the radar's TOP mark faces upward. Then apply fixing glue around the perimeter of the radar.



- Connect the radar's wiring harness properly and reinstall the rear bumper.

6. Function description

6.1 Self-diagnosis

After the key is turned to "on", the system will carry out self-diagnosis function and remind the driver of the system working status.

- If the self-diagnosis pass, the left and right warning indicator will be on for 1s, buzzer beeps once;
- If the self-diagnosis fail, the warning indicators will blinker for 3 times, buzzer beeps twice;

6.2 Basic function

6.2.1 BSD and LCA function

- Working Condition:
 - The ignition is turned to "on";
 - The vehicle reverse gear is not engaged in;
- Warning principle:
 - Warning area I (BSD)

When the subject vehicle speed $V_{\text{vehicle}} \leq 20\text{km/h}$, and there's target vehicle approaching, and $TTC \leq 2\text{s}$, the warning will be triggered;

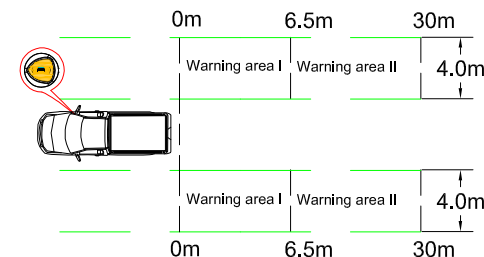
When the subject vehicle speed $V_{\text{vehicle}} > 20\text{km/h}$, and there's target vehicle approaching or driving away, the warning will be triggered.

b. Warning area II (LCA)

When the subject vehicle speed $V_{\text{vehicle}} \leq 20\text{km/h}$, and there's target vehicle approaching, and $TTC \leq 2\text{s}$, the warning will be triggered;

When the subject vehicle speed $V_{\text{vehicle}} > 20\text{km/h}$, and there's target vehicle approaching and the $TTC \leq 3.0\text{s}$, the warning will be triggered.

- If the alarm is triggered, turn on the turn signal on the corresponding side, and the collision alarm will be triggered (the corresponding indicator flashes and the buzzer beeps 3 times)



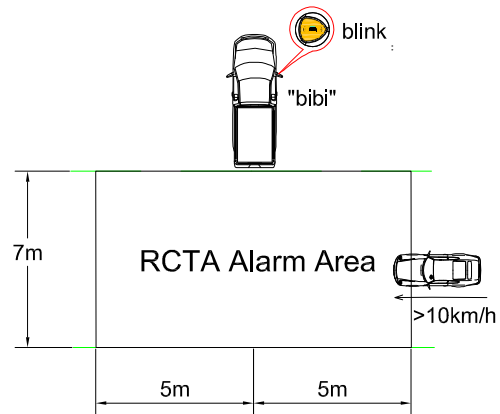
6.3 RCTA function

(1) Working conditions:

- a. The ignition is turned to "on";
- b. Reverse gear is engaged;
- c. Subject vehicle speed less than 5km/h;

(2) Warning principle:

When reversing, the radar sensor monitors the incoming vehicles on both sides behind the vehicle to warn the driver with visible and audible alarm:



7. Setting Function

Users can adjust the volume of the buzzer using the DIP switches on it, with options to set it to Mute, Low Volume, and High Volume.

