

BSD

Commercial Vehicle Blind Spot Detection (BSD)
and Lane Change Assist Terminal

For Buses, Trucks, and Special-Purpose Vehicles

User Manual

77Ghz Millimeter Wave Radar

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1. Product Overview

Thank you for choosing our Blind Spot Detection (BSD) and Lane Change Assist (LCA) Warning System for passenger and cargo vehicles. This product consists of two 77GHz millimeter-wave radars, two indicator lights (or electronic rearview mirrors), one buzzer, and a set of connecting cables.

The system provides early warning for dangerous targets in adjacent left and right lanes. It integrates three functions: BSD, LCA, and AOA. With its strong ability to penetrate smoke, fog, and dust, the system enables all-weather, all-day operation. It continuously detects objects within the signal coverage area in real time and can simultaneously track up to 32 objects, calculating their speed, angle, and relative displacement.

The system detects targets up to 50 meters away and issues warning signals for the nearest ones. Warning levels include Level 1 and Level 2 alerts

2. Packing List



Item	Quantity
77GHz Millimeter-Wave Radar	2 pcs
In-Car Warning Indicator Light	2 pcs
Power Cable with Buzzer	1 pc
Radar Extension Cable	2 pcs
Warning Light Extension Cable	2 pcs
Cable Ties	Several
Self-Tapping Screws	Several
User Manual	1 pc

3. Technical Specifications

No.	Item	Specification
01	Operating Voltage	12V - 32V
02	Operating Frequency	77GHz
03	Operating Temperature	-40℃to+85℃
04	Power Consumption	<3W
05	Waterproof Rating	IP67
06	Distance Resolution	0.5m
07	Distance Accuracy	Better than 0.18 m
08	Detection Range	50m

4. Product Functions

Description

Level 1 Warning: Warning light remains steadily on

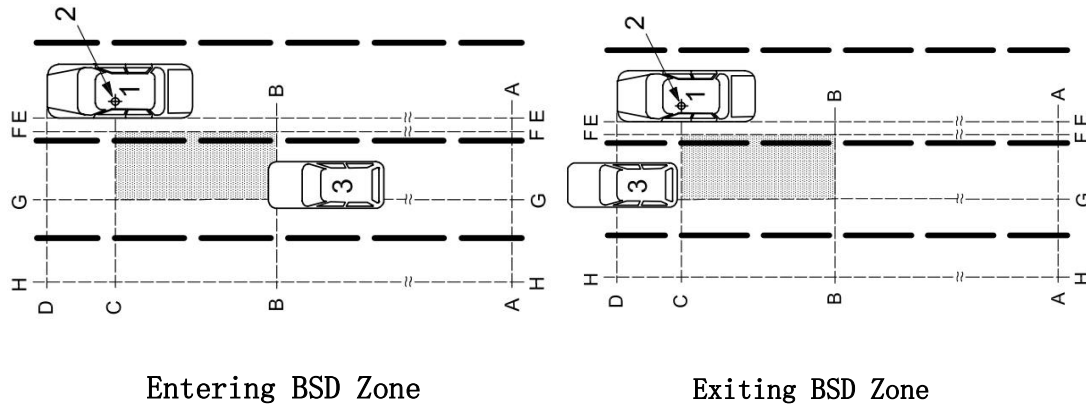
Level 2 Warning: Warning light flashes + Buzzer sounds

1. BSD (Blind Spot Detection) Warning

Detection Area: 3 meters wide (side), 15 meters long (rear)

(1) When a target vehicle enters the blind spot detection area and the turn signal is not activated, a Level 1 warning is triggered. The warning is canceled once the target leaves the monitored area.

(2) When a target vehicle enters the blind spot detection area and the turn signal is activated, a Level 2 warning is triggered. The warning is canceled once the target leaves the monitored area.

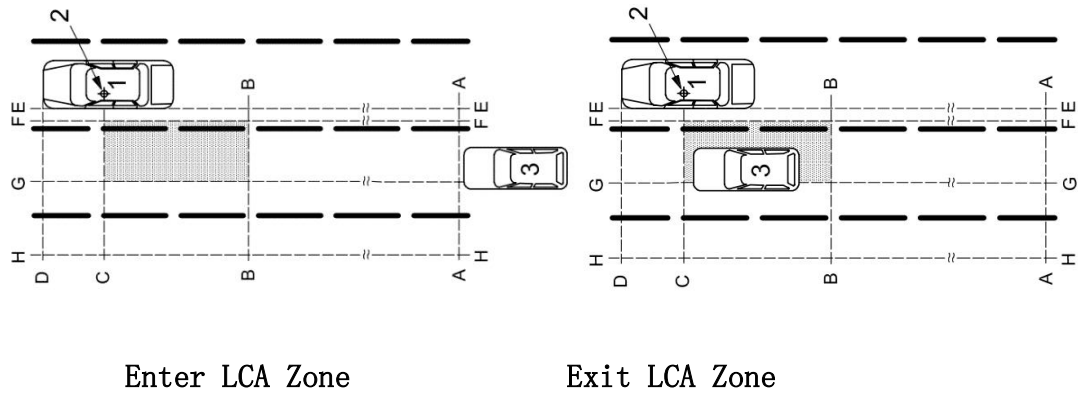


2. LCA (Lane Change Assist) Proximity Warning

Detection Area: 3 meters wide (side), 50 meters long (rear)

(1) When a target vehicle enters the warning area and the turn signal is not activated, a Level 1 warning is triggered. The warning is canceled once the target leaves the warning area.

(2) When a target vehicle enters the warning area and the turn signal is activated, a Level 2 warning is triggered. The warning is canceled once the target leaves the warning area.

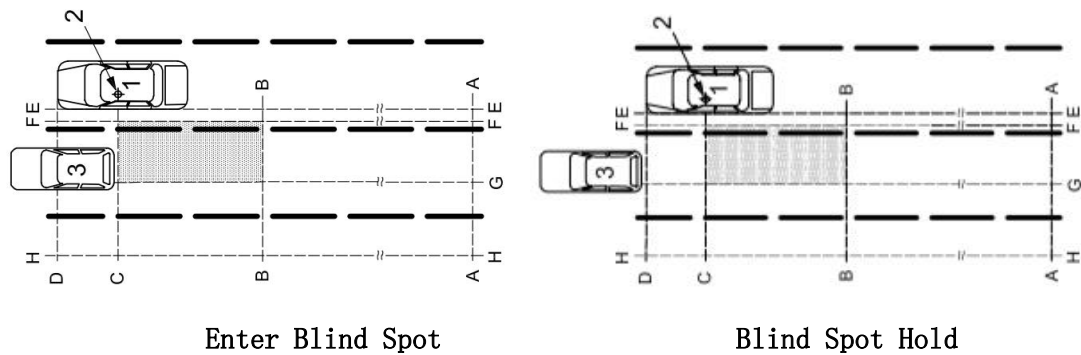


3. AOA (Overtaking Alert) Warning

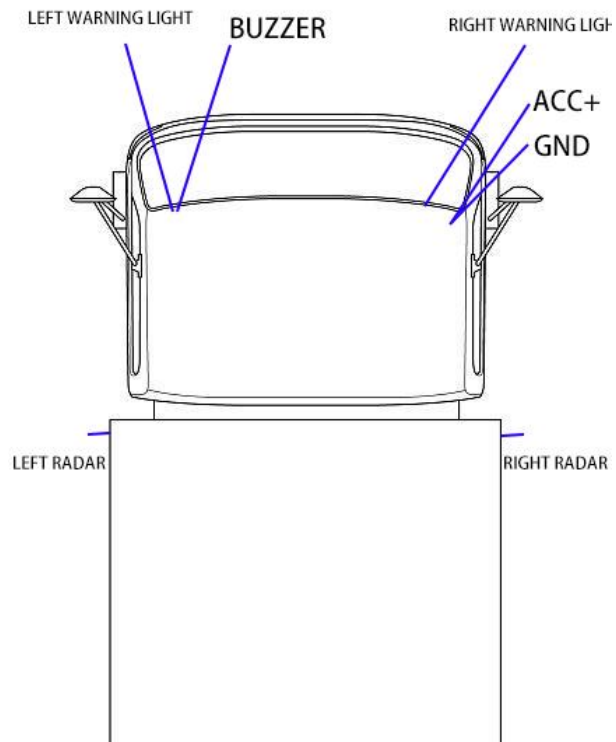
Detection Area: 3 meters wide (side), 15 meters long (rear)

(1) When a target enters the warning area, a Level 1 warning is triggered. The warning is canceled once the target leaves the area.

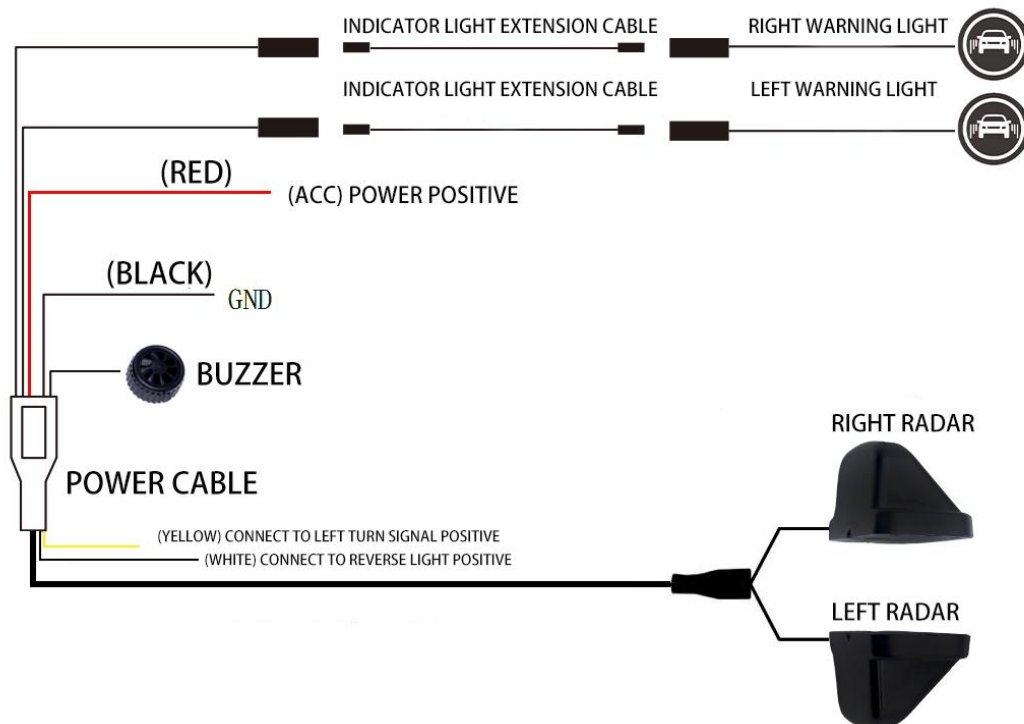
(2) When a target enters the monitoring area and the corresponding turn signal is activated, a Level 2 warning is triggered. The warning is canceled once the target leaves the area.



5. Installation Diagram

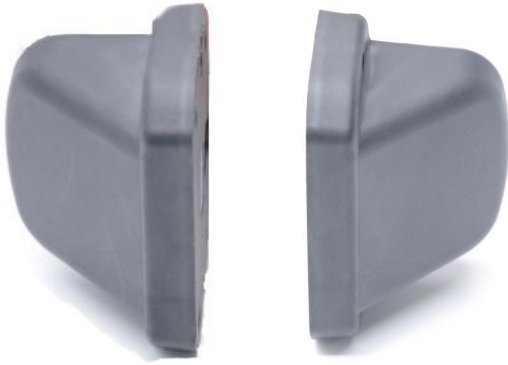


6. Wiring Diagram

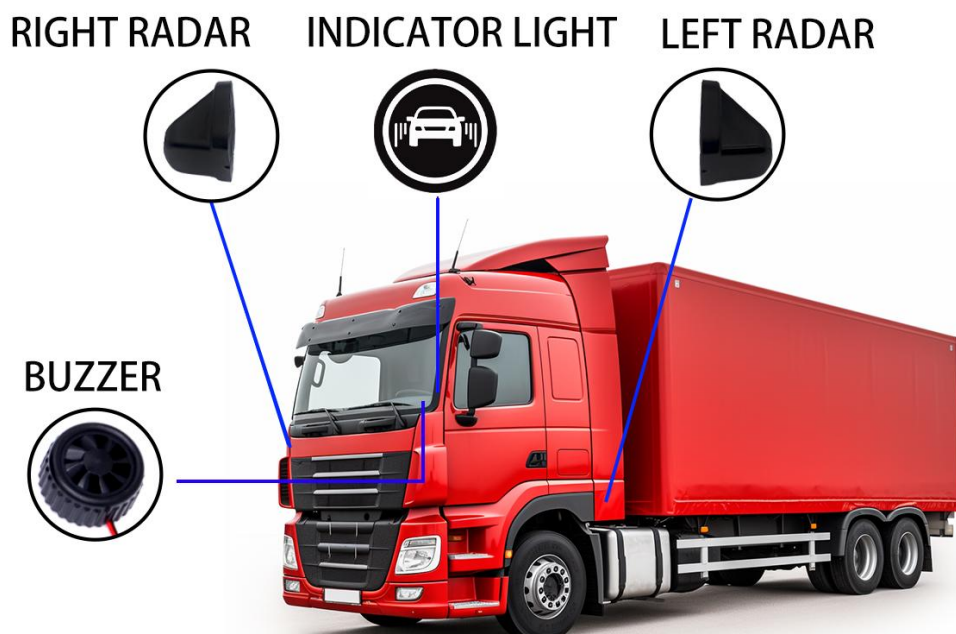


7. Installation Method

1. Radar Installation Orientation (Tilted Backward, Vertically Mounted)



2. Radar Installation Position



Note:

It is recommended to install the device at a height of **0.5 to 1.2 meters** above the ground.

Please strictly follow the installation angle instructions described below.

8. Operating Instructions

(1) After the vehicle's ACC is powered on, the system immediately performs environment adaptation detection and then enters the working state. When the vehicle is turned off, the radar stops working.

(2) When the turn signals and hazard lights are not activated, the system remains in Level 1 warning state.

(3) When the turn signals or hazard lights are activated, the system switches to Level 2 warning state.

9. Precautions

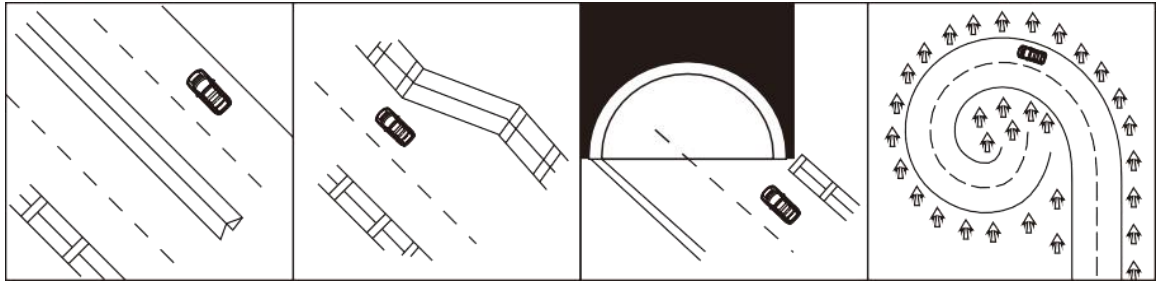


Before performing an actual lane change, always visually check the surrounding area. This system is intended only to assist you in detecting vehicles behind when changing lanes. Due to certain limitations of the real-world operating environment, there may be instances where a vehicle is already in the adjacent lane, but the system's warning lights do not flash or may flash with a delay.

Do not rely solely on this system. The company assumes no responsibility for any accidents caused as a result.

1. The radar may not provide warnings in the following situations:
 - a. A vehicle is in the blind spot of the adjacent lane behind and maintains the same relative speed for an extended period.
 - b. The adjacent lane is extremely wide, exceeding the radar signal processing range.
 - c. When passing over hills or at the crest of slopes.
2. If the road width is narrow, vehicles in two lanes may be detected simultaneously.

3. The system' s warning lights may activate in response to stationary objects on or beside the road (such as guardrails, walls, tunnels, greenery, etc.).



Guardrail / Concrete Wall Narrowing Guardrail / Wall Tunnel Entrance / Exit Greenbelt Curve Decreasing Radius