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Blind Spot Detection System User Manual

24Ghz Microwave Sensor

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1. Introduction

Thanks for choosing our blind spot detection system. This set of product includes two 24Ghz microwave sensors, two Indicators (or special vehicle blind-spot-type rear view mirror,not included), one buzzer and connecting harness.

This set of product will give drivers pre-warning when targeting objects enter in adjacent lanes. The product provides Blind Spot Detection(BSD), Lane Change Assist(LCA) functions. The major characteristic is the product can not be affected by bad weather. It can be used normally in all weather and all time, even in foggy, rainy, snowy days or at night. It is able to detect the target as far as 20 meters, and send pre-warning signals. The pre-warning signals includes Level 1 and Level 2 warnings.

2. Product Contents

Name	Quantity
24Ghz microwave sensor	2
Pre-warning indicators	2
Wire harness with buzzer	1
Extension of sensor harness	1
Indicator harness	2
Sensor line	1
Bevel protractor	1
Accessories package	1
Operation manual	1

3. Technical Parameter

No.	Item	Specification
01	Operating voltage	9-16V
02	Operating frequency band	24 Ghz
03	Operating temperature	-40℃ to +85℃
04	Power consumption	< 2W
05	Water-proof level	IP67
06	Distance resolution	0.5m
07	Range accuracy	Superior to 0.18m
08	Maximum detection distance	20m
09	Shield the third lane	70%
10	Same speed follow warning	No
11	Blind Spot Detection	Yes (power on)
12	LCA Lane Change Assist	Yes (power on)
13	AOA overtaking warning	No
14	RCTA Reverse Crossing Alert	No

4. Working Principle

Working Mode:

Level 1 Warning: Indicator lamp is always on

Level 2 Warning: Indicator lamp flashes + Buzzer sounds

1. Signal range: Fan-shaped signal with 40° angle horizontally and 50° angle longitudinally.

2. Starting mode: Power-on start.

3. Pre-warning mode:

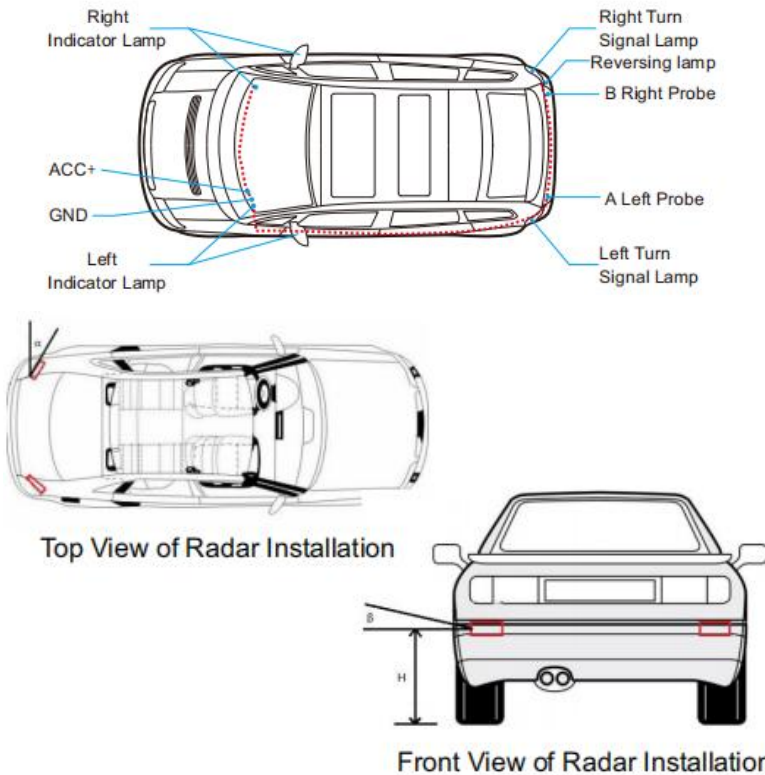
Level 1: when targeting object enters the sensor signal area with the faster speed (your vehicle's signal lamp doesn't turn on), it will trigger Level 1 warning .

Level 2: when targeting object enters the sensor signal area with the faster speed (your vehicle's signal lamp turns on) , it will trigger the Level 2 warning until the targeting object leaves the monitoring area.

5. Installation Instructions

5-1: Sensor Installation

1. Installation height of sensor: 0.4~0.9m from the ground.
2. Installation angle of sensor: Follow instructions strictly, The angle ruler's arrow is at a 20-degree angle to the sensor, and the ruler parallel to the vehicle body.
3. Sensor's installation location:
 - A. It can be fixed on the bumper.
 - B. It can be located inside the rear surround area of vehicle.
4. Microwave sensor (signal launching surface) backwards, must no metal objects blocked in front(Special tips).
5. The sensor outlet is left or right. (as pictures in next page).



5-2. Bracket Installation

Need to use these accessories in the box:

- ✓ 2x L Brackets
- ✓ 6x Self-tapping screws (0.16x0.5inch)

Steps of bracket installation:

1. Find the right position according to the angle and height guided by the instruction manual (with angle ruler) and fix the L-shaped bracket with self-tapping screws.
2. Firmly bend the bracket and use an angle ruler to calibrate the angle of the L-shaped bracket.
3. After the angle of the bracket is confirmed, secure the sensor to the bracket with the screws, making sure the signal side is facing out.
4. Adjust the sensor to the proper angle using the angle ruler according to the installation guide in the manual.



Sensor's outlet - left



Sensor's outlet - right



Make sure:

- 1) the angle ruler's arrow is at a 20-degree angle to the sensor;
- 2) the straight bar of the angle ruler is parallel to the body of the vehicle.

6. Wire Connection & Diagram

6-1: Before connecting the power supply:

1. Locate the fuse box (usually located under the steering wheel).

2. Test with a test pen, use pliers to hold a metal part of the body (such as a large nut).

3. Test the fuse box with the tip of the pen:

A: the car is not started, the test pen light is on, the position is normally charged.

B: the car starts, the test pen light is on, the car is off, the test pen light is off, the position is ACC.

6-2: Power line connection:

A. Connect the black line to the negative pole of vehicle;

B. Connect the red line to the ACC power of vehicle
(vehicle starts with normal power/stops with no power).

C. Connect the indicator extension line to the indicator lamp, plug into the socket. pay attention to the left/right label on indicator lame line. Must not mix them.

Connecting the power supply

1

After confirming that the product accessories are complete, first take the electricity

Connecting the power supply

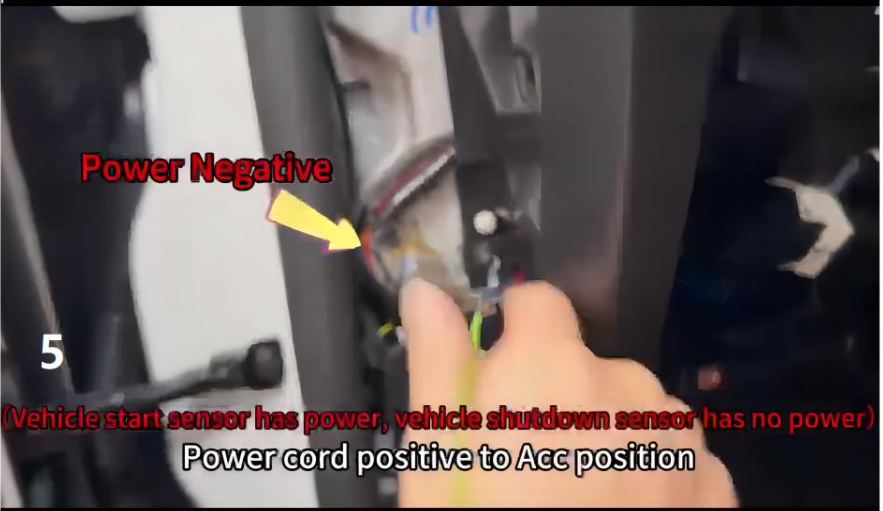
2

After confirming that the product accessories are complete, first take the electricity

Power Positive

3

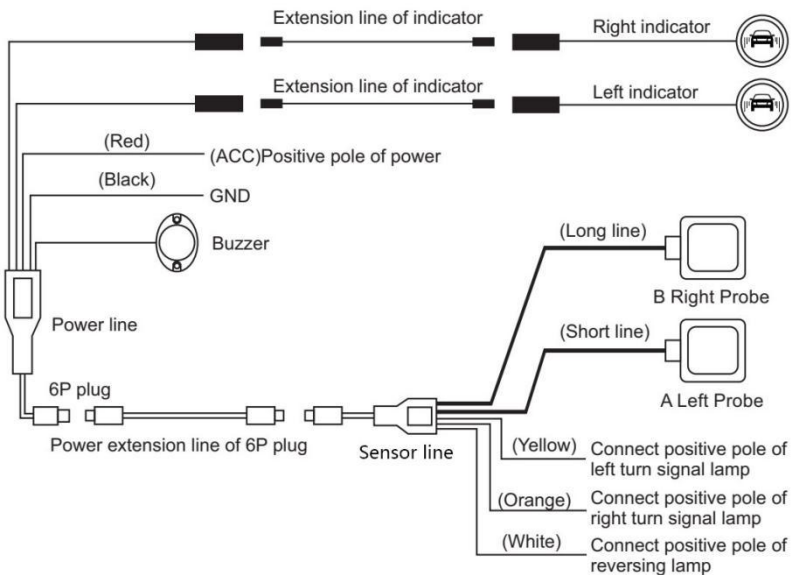
The power supply is usually under the steering wheel



6-3 Sensor line connections:

- A. Plug in the power extension cord and connect the sensor to the sensor extension cord.
- B. Connect the sensor's yellow wire to the positive terminal of the vehicle's left turn signal.
- C. Connect the sensor's orange wire to the positive terminal of the vehicle's right turn signal.
- D. Connect the sensor's white wire to the positive terminal of the vehicle's reverse light.

6-4: Connection Diagrams: Optional reminder light (same function): round light and diamond light.



7. General Troubleshooting

Failure Symptoms	Causes analysis & Solutions
Indicators don't turn on	1. The wiring harness connector is loose or missing. Check all wiring harnesses to make sure they are connected correctly.
	2. Indicator light is damaged, replace the indicator light.
Buzzer doesn't sound	1. The wiring harness connector is loose or missing. Check all wiring harnesses to make sure they are connected correctly.
	2. Buzzer is damaged, replace buzzer.
System doesn't work normally	1. The wiring harness is broken or the connector contact is poor, replace the new wiring harness.
	2. The microwave sensor is damaged, replace it with a new one.
	3. Check if L/R indicators are connected wrongly. Reverse back the L/R indicators connector.

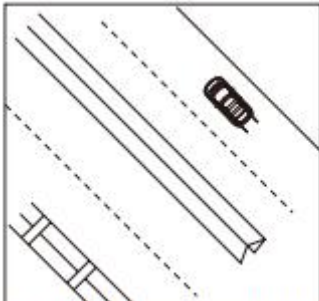
8. Notice and Warnings

8-1: Notice:

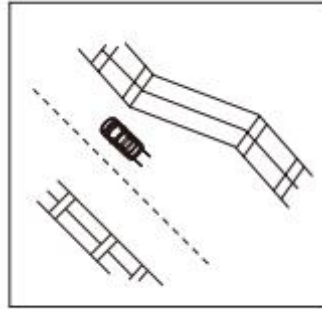
1. After vehicle ACC powers on, the system will Immediately Detect the environmental adaptability and then enter into working mode. After the vehicle stops, the sensor will stop working.
2. When the turn signal lamp is off and double-flash warning lamps off, the system will stay in the Level 1 warning status.
3. When the turn signal lamp is on and double-flash warning lamps on, the system will stay in the Level 2 warning status.

8-2: Matters need attention:

- Under the following circumstances, the Sensor may not warn you promptly:
 - The vehicle is located at the rear blind spot of adjacent lanes and keeps the relative same speed for long time.
 - The adjacent lanes where vehicle is located are extremely wide, which exceeds the sensor's detection range we set.
 - When driving through the hills or top of hill roads.
- If the roads are narrow, it is possible to detect the vehicles of two lanes.
- The pre-warning signal lamp of this system may be turned on to the stationary objects on the road or roadside.(e.g. guardrails/walls/tunnels/greenbelts etc.)



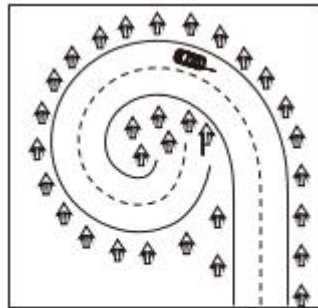
Guardrail / concrete wall



Barrier / wall narrowing



Tunnel entrance



The turning radius of the green belt is smaller

Warninging

Before changing the lanes at the practical lane, please visually check the surrounding areas.

This system is only used to assist you to detect the vehicles behind when changing lanes. Due to some limitations in the actual working environment, sometimes the vehicles have stayed in the adjacent lanes, but the warning signal lamp of system doesn't flash or may delay to flash. Please don't complete rely on this system, and this company shall not take any responsibility for the incident occurred due to this.

