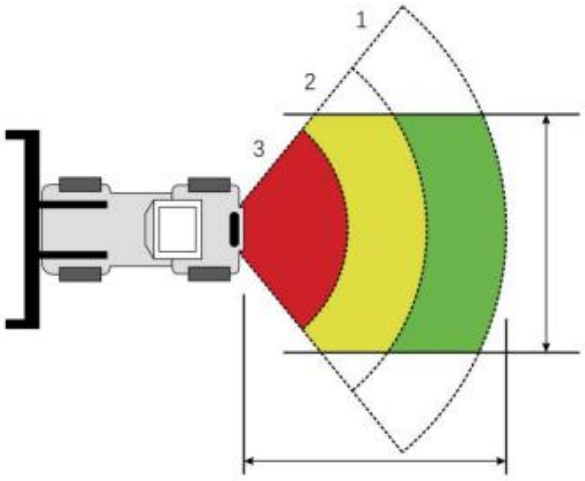
User Manual



Content

1.Product introduction

Composition:

Thank you for choosing our Radar Obstacle Avoidance Warning System RO350. RO350 consists of control box, (1-2) Obstacle Detection Radar, alarm light, buzzer, extension cables, car monitor (optional), camera (optional).

Application:

RO350 is widely used in trucks, forklift, mine car, construction machinery vehicles, airport machinery vehicles and other heavy commercial vehicles. It can also be connected with electric scooter controller, car brake controller or other equipments to realize automatic brake for obstacle avoidance.

Functions:

Control box: Used to receive and process the data of Obstacle Detection Radar. It can access 1-2 radars and set alarm area.

The alarm area range covers the range of 4m wide and 40m long in front of the radar. And the alarm area can be set in 3 levels:

Level 1 alarm area (farthest distance): when detecting obstacle in this area, the alarm light would be on, and the buzzer would not sound;

Level 2 alarm area (middle distance): when detecting obstacle in this area, the alarm light would flash slowly, and the buzzer would sound intermittently;

Level 3 alarm area (nearest distance): when detecting obstacle in this area, the alarm light would flash quickly, and the buzzer would sound all the time;

When an alarm is triggered, the CAN data, TTL serial port data and alarm light/buzzer signals can be output at the same time.

Obstacle Detection Radar: Obstacle Detection Radar is a 77GHz millimeter wave radar for detecting obstacles in front. Compared with infrared, laser and ultrasonic radars, the millimeter wave radar is less affected by weather changes and has good anti-jamming performance, excellent range detection capability. It can detect range up to 40 meters.

Car Monitor (optional): It is adopted HiSilicon high-end stable scheme. It can connect with 4 AHD Cameras and input the alarm signal from control box. After connecting cameras and RO350 control box, it can display the radar alarm area and 3 levels alarm on the screen.

Level 1 alarm: it will flash green box on the screen.

Level 2 alarm: it will flash yellow box on the screen.

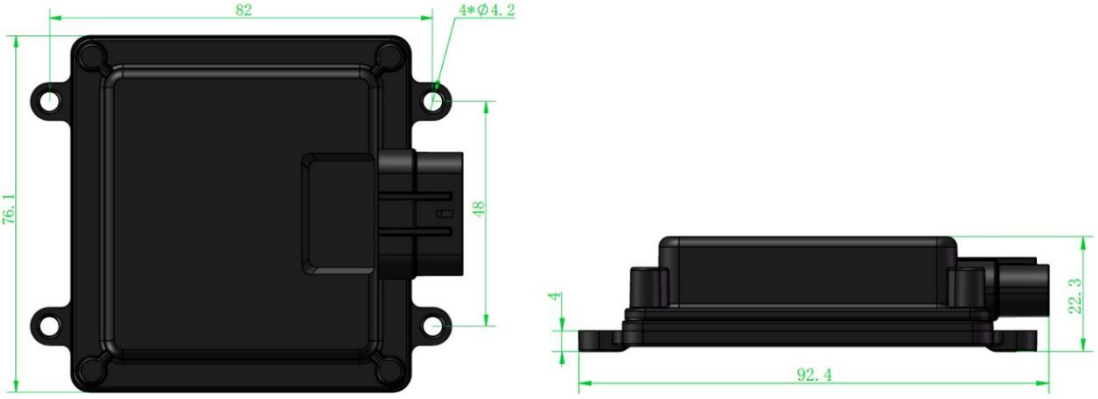
Level 3 alarm: it will flash red box on the screen.

2. List of products and accessories

Name	Quantity
Obstacle Detection Radar	1-2pcs (can be selected according to requirements)
Control box	1 set
Power cable	1pc
Alarm signal output cable	1pc
Buzzer	1pc
Alarm light	1-2pcs (according to the number of radar)
Alarm light extension cables	1-2pcs (4meters/pc, according to the number of radar)
Radar cables	1-2pcs (5meters/pc, according to the number of radar)
Radar bracket	1-2pcs (according to the number of radar)
Radar extension cables	10meters/pc (optional)
Car Monitors	1pc (optional)
Cameras	(optional)
Accessory bag	1 pack

A. Appearance of control box (housing size: 104*95*28mm)

B. Appearance of Radar (Radar size: 82 * 76.1 * 22.3mm)



3. Technical parameters

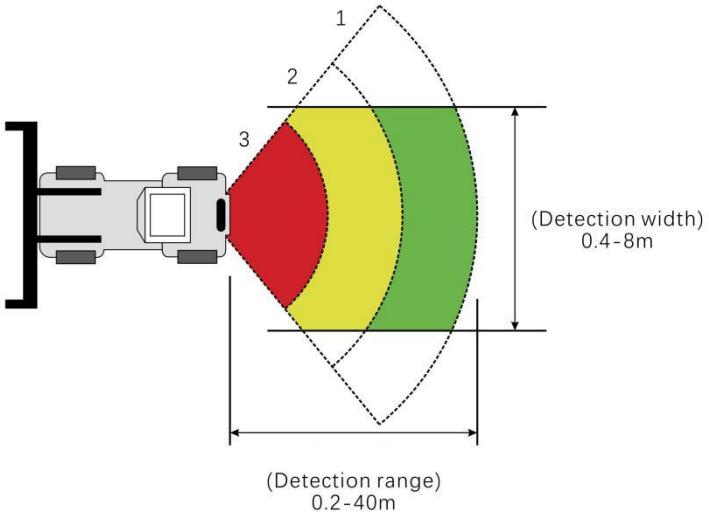
NO.	Item	Specification
01	Operating voltage	12-24V
02	Radar operating frequency band	77-78Ghz
03	Working temperature	- 40℃ ～ + 85℃
04	Radar power consumption	＜2W
05	Full load power consumption	＜5W
06	Shockproof	5.9G
07	Waterproof	Ip67 (Radar)；IP65 (control box)
08	Refresh rate	33Hz
09	Receiving and transmitting channels	2TX4RX
10	Pitch beam width (6dB)	-2~8°
11	Horizontal beam width (6dB)	－60°~＋60°
12	Range resolution	0.2M
13	Speed resolution	1.9km/h
14	Speed measuring range	±60km/h
15	Detection range	Range from 0.2~40m, 3 detection areas can be set.

4. Function description

Long detection distance, high accuracy, maximum detection 40m.

A single radar can adjust the monitoring distance up to 40m.

A single radar can be adjusted with a monitoring width of 0.4-8m.



Monitoring area	Prompt lamp	Buzzer	Display screen (optional)
Monitoring area1	Always on	Mute	Green flashing
Monitoring area2	Flicker slowly	BI-BI-BI	Yellow flashing
Monitoring area3	Fast flashing	BI------	Red flashing

5. Installation instructions

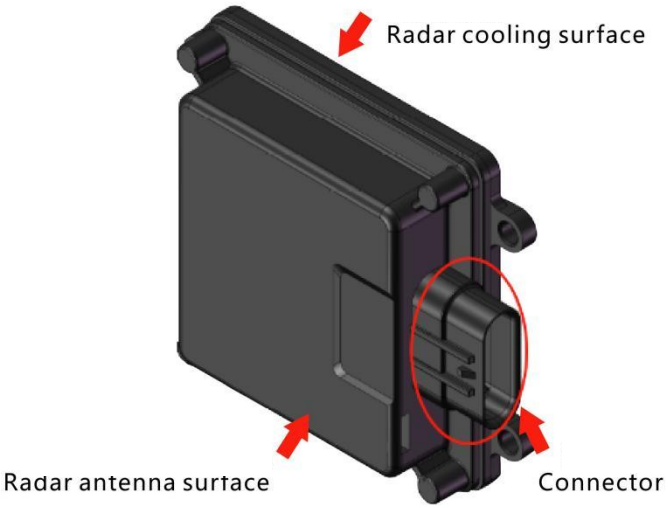
Before installation, please kindly note the following precautions:

(1) Please keep the radar surface clean during installation. If it need to be cleaned, please clean it with a soft damp cloth, and let it air dry naturally;
(2) Please make sure the radar shape is not deformed during installation. Do not squeeze, bump or fall it.
(3) During installation, it shall be far away from the position with strong magnetic field interference, such as high-power electrical equipment and motors that are frequently started;
(4) During the test, there shall be no obstructions within the radar beam range, and the test environment shall be as wide as possible to avoid affecting the measurement results.

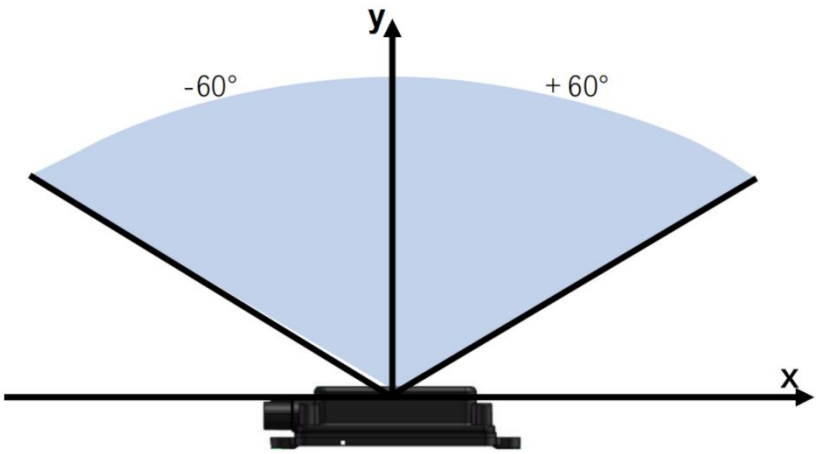
Installation and coordinate system:

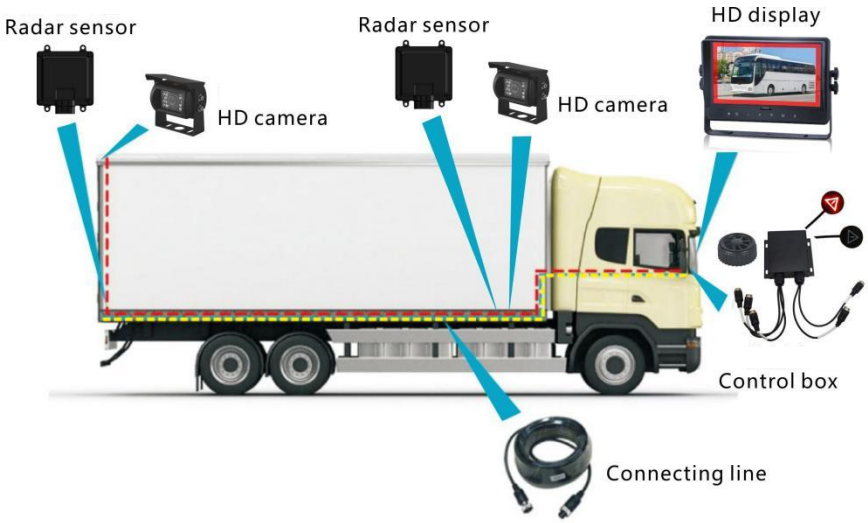
1) Installation direction: the radar antenna surface (flat surface) should face the detection area and be installed vertically and horizontally (because the antenna elevation angle is small, it should be vertical to the ground as far as possible during installation); The connector should go out to the right;

2) Installation position: 0.5~1m above the ground is recommended; If the installation height is less than 0.5m, the installation pitch angle shall be adjusted appropriately;



3) Coordinate system (as shown in the figure below):





6. Wiring diagram (example)

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