

77Ghz Microwave Radar Obstacle Avoidance Warning System

Instruction manual

Catalog

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I. Product Introduction

Thank you for choosing our 77Ghz microwave radar obstacle avoidance warning system, the product consists of a main control box, (1-2) 77Ghz microwave short and medium range obstacle avoidance radar, (1-2) indicators (or display + camera), a buzzer and connecting harness.

Product Application.

77Ghz microwave radar obstacle avoidance warning system is suitable for installation around the body, and the area corresponding to each position that needs to be warned is set individually, it is widely used in heavy commercial vehicles such as trucks, construction machinery vehicles, airport and port machinery vehicles; and can be docked to electric mobility scooter controller, driving school vehicle brake controller and other equipment to do automatic obstacle avoidance brake application.

Main control box function: receive and process 77Ghz obstacle avoidance radar data, can access 2 obstacle avoidance radar at the same time, the radar warning range to do settings, warning range in the radar as the center of the left and right 4 meters, 40 meters long rectangular range to do three regional settings, three levels of warning: primary warning (the farthest): prompt light is always on, buzzer does not sound; secondary warning (the middle distance): prompt light slow flash, buzzer flash break sound The third level of warning (the nearest): the prompt light flashes quickly, the buzzer sounds long. At the same time, CAN data, TTL serial data and prompt light/buzzer signal can be output.

Short and medium range obstacle avoidance radar: The obstacle avoidance radar is a 77GHz vehicle microwave radar for detecting obstacles in front of you when driving at low and medium speeds. Compared with infrared, laser and ultrasonic radar, the microwave radar is less affected by weather changes and has good anti-interference performance and distance detection capability, with detection distance up to 40 meters.

Display screen (optional): using the high-end and stable program of HIS, the trigger line can receive the level signal output from the main control box and correspond to the three levels of warning on the screen, the first level of warning (farthest): flashing green box; the second level of warning (middle distance): flashing yellow box; the third level of warning (nearest): flashing red box. Can access the camera corresponding to the display of radar warning area screen.

II. Product List

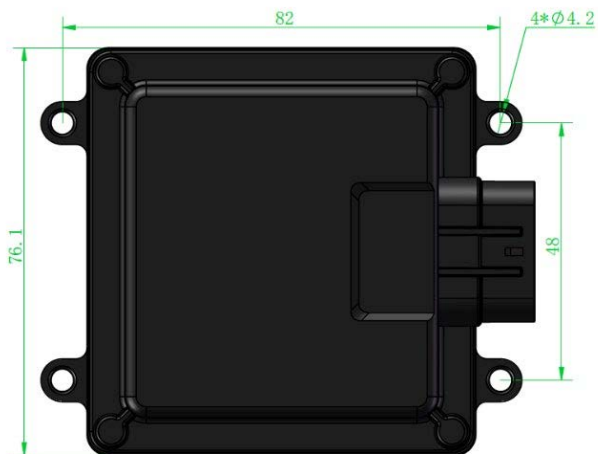
| Name | Quantity |
|--|---|
| 77Ghz Microwave Obstacle Avoidance Radar | 1-2pcs （Select on demand） |
| Master Control Box | 1pc |
| Power cable | 1pc |
| Pre-alarm output line | 1pc |
| Buzzer | 1pc |
| Early warning light | 1-2pcs （configured by the number of radars） |
| Cue light extension cable | 1-2 strips (4m/strip, configured by number of radars) |
| Radar wire | 1-2 strips (5m/strip, configured by number of radars) |
| Radar bracket | 1-2 (configured by radar quantity) |
| Radar extension cable | 10m/strip (optional) |
| Display screen | 1 (optional) |
| Camera | (optional/self-acquired) |
| Accessory Kit | 1 package |
| Instruction manual | 1 book |

A、Appearance of the main control box



Shell size: 100*68*50mm

B、Radar exterior view



Radar size : 82*76.1*22.3mm



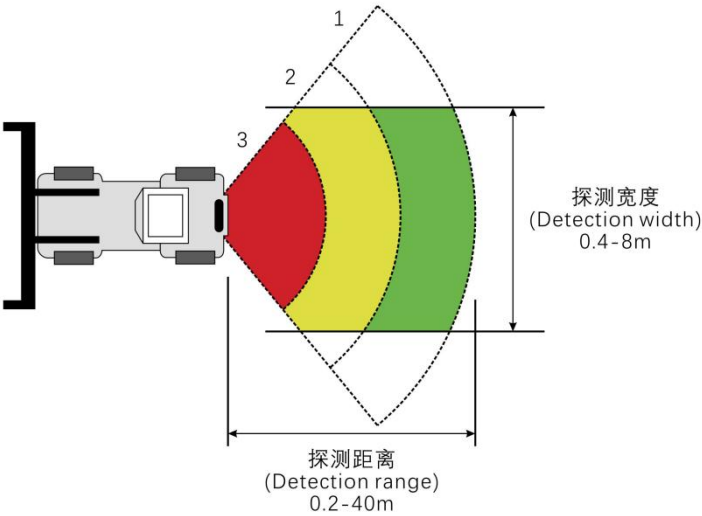
III. Technical parameters

| No. | Item | Specification |
|-----|---|---|
| 01 | Working voltage | 12-24V |
| 02 | Radar working frequency band | 76-77Ghz |
| 03 | Working temperature | - 40℃ ~ + 85℃ |
| 04 | Single radar power consumption | <2W |
| 05 | Full load power consumption | <5W |
| 06 | Anti-vibration level | 5.9G |
| 07 | Waterproof protection | Ip67 (Radar) ; IP65 (main control box) |
| 08 | Refresh rate | 33Hz |
| 09 | Number of transmitting and receiving channels | 2TX4RX |

| | | |
|----|---------------------------|--|
| 10 | Pitch beamwidth(6dB) | -2~8° |
| 11 | Horizontal beamwidth(6dB) | -60°~+60° |
| 12 | Distance resolution | 0.2M |
| 13 | Speed resolution | 1.9km/h |
| 14 | Speed measurement range | ±60km/h |
| 15 | Detection distance | Length 0.2~40m, can limit the detection width, can set up to 3 detection areas (the distance of each area can be configured) |

IV. Product Features

- 探测距离远，精度高，最大探测40米；
Long detection distance, high accuracy, maximum detection 40m.
- 单个雷达可调监测距离长达40米；
A single radar can adjust the monitoring distance up to 40m.
- 单个雷达可调监测宽度为0.4-8米。
A single radar can be adjusted with a monitoring width of 0.4-8m.



| 监测区域 Monitoring area | 提示灯 Prompt lamp | 蜂鸣器 Buzzer | 显示屏（选装） Display screen (optional) |
|---------------------------|----------------------|---------------|--------------------------------------|
| 监测区域1 Monitoring area1 | 常亮 Always on | 不响 Mute | 绿框闪烁 Green flashing |
| 监测区域2 Monitoring area2 | 慢闪 Flicker slowly | BI-BI-BI | 黄框闪烁 Yellow flashing |
| 监测区域3 Monitoring area3 | 快闪 Fast flashing | BI----- | 红框闪烁 Red flashing |

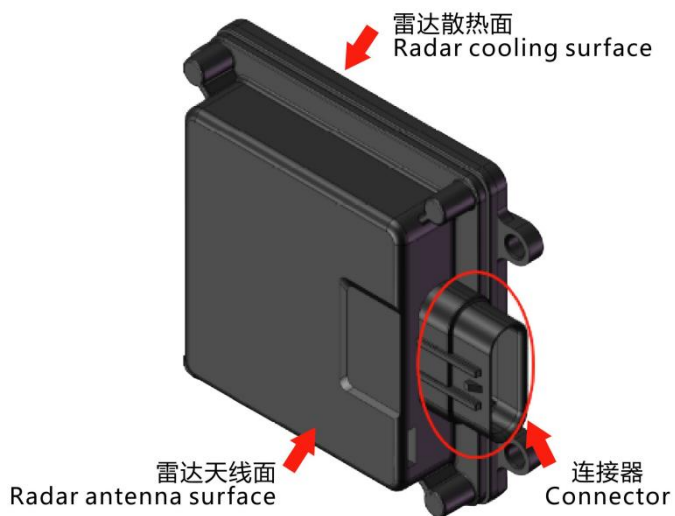
V. Installation instructions

Please read the precautions for use before installation!!!

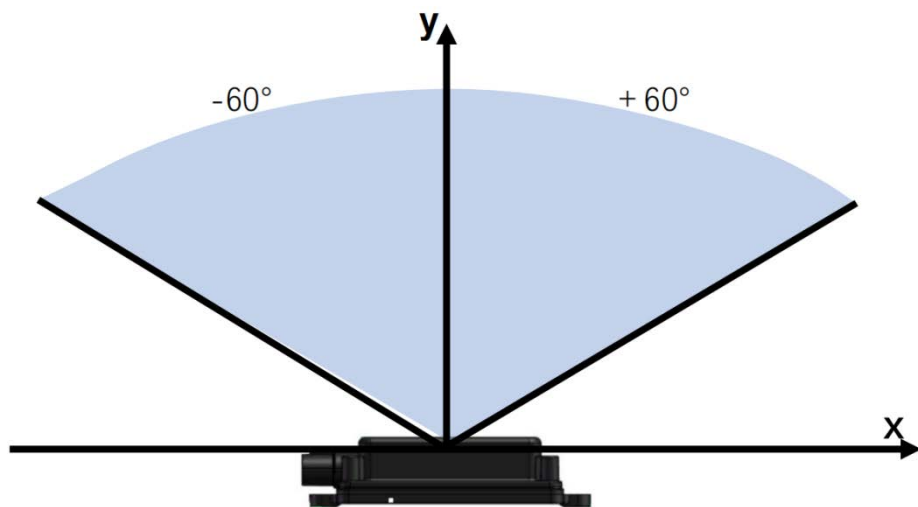
- (1) Please keep the radar cover clean when installing, cleaning the cover needs to be wiped with a soft damp cloth, and then naturally air dry.
- (2) Please pay attention to the shape of the radar when installing, make sure the radar is not deformed, do not squeeze, bump, drop.
- (3) Installation as far as possible from the frequent start of high-powered electrical equipment and motors and other locations with strong magnetic interference.
- (4) When testing, there should not be any obstruction in the radar beam range, and the test environment should be as open as possible to avoid affecting the measurement results.

Installation and coordinate system

- 1) Installation direction: radar module antenna surface (flat surface) facing the detection area, vertical horizontal installation (because the antenna pitch angle is small, try to keep vertical with the ground when installed); connector towards the right side out.
- 2) Installation position: it is recommended to install at a height of 0.5~1m from the ground; if the installation height is less than 0.5m, the installation pitch angle should be adjusted appropriately.



3) Coordinate system: The following figure shows.





Six, line connection diagram example

