77Ghz Microwave Sensor

Truck Collision Avoidance Warning System

I、Product Introduction

Thank you for choosing our 77Ghz Microwave Sensor Obstacle Avoidance Early Warning System, the product consists of a touch screen host, a 77Ghz microwave short- and medium-range obstacle avoidance sensor and connecting harness.

Product Applications:

77Ghz Microwave Sensor Obstacle Avoidance Warning System is suitable for installation in front and rear of the body, the touch screen can do parameter setting for the area that needs to be warned, it is widely used in trucks, construction machinery vehicles, airport port machinery vehicles and other heavy commercial vehicles.

77Ghz Microwave Sensor：

It is a 77GHz vehicle-mounted microwave sensor for detecting obstacles ahead when driving at medium and low speeds. Compared with infrared, laser, and ultrasonic sensors, this microwave sensor is less affected by weather changes and has good anti-interference performance and distance detection capabilities, with a detection distance of up to 40 meters.

Touch Screen Mainframe：

Receive and process 77Ghz obstacle avoidance sensor data, set the sensor warning range, the warning range in the sensor as the centre of the left and right 4 meters, the length of 40 metres within the rectangle to do the three regional settings, can be customized high level and RS232 protocol output.

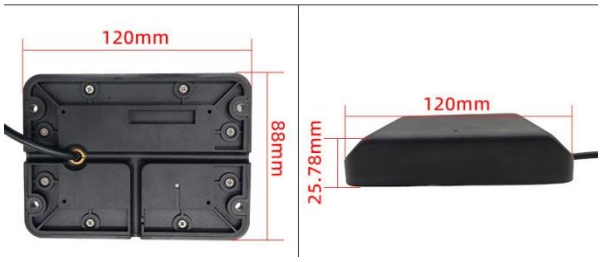
II、Product List

Product Name	Quantity
77Ghz Microwave Obstacle Avoidance Sensor	1pcs（Wire:1M）
Touch Screen Mainframe	1pcs
Power Cable	1pcs
Sensor Extension Cable	5M*1pcs
Sensor Bracket	1 group
Accessory Pack	1 pack

A、Product Images

B、Touch Screen Appearance

C、Sensor Appearance



Sensor size：120*88*25.78mm

III. Technical parameters

Number	Items	specification
01	Operating Voltage	12-30V
02	Sensor Operating Frequency Band	77-78Ghz
03	Operating Temperature	- 40℃ ～ + 85℃
04	Power Consumption	＜3W
05	Full Load Power Consumption	＜6W
06	Sensor Waterproof Rating	Ip67
07	Refresh rate	33Hz
08	Number of Channels	2TX4RX
09	Pitch Beamwidth(6dB)	-5~5°
10	Horizontal Beamwidth(6dB)	－60° ~＋60°
11	Distance Resolution	0.2M
12	Speed Resolution	1.9km/h
13	Speed Range	±60km/h
14	Detection Distance	Length 0.2~40m, configurable detection width, up to 3 detection zones (distance of each zone can be configured)

IV. Product Features

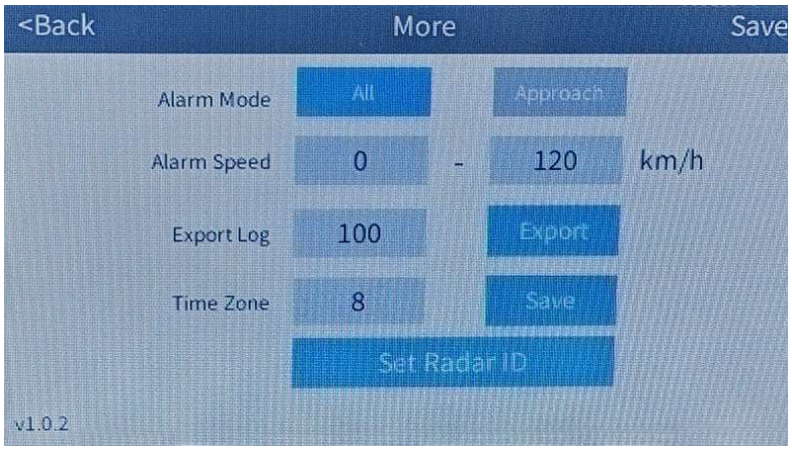
A、Set up warning areas:

The green box sets the farthest alarm area, the yellow box sets an alarm area in the middle, and the red box sets the nearest alarm area.

Left and right range: Adjusts the distance value to the left of the sensor centred on the sensor (starts with a - sign) and to the right of it.

Vertical distance: Near-end distance is set to 0 by default (if there is a fixed obstacle in front of the sensor, such as a bumper at the rear of the car, you can set a distance value greater than that from the sensor to the bumper, which is used to filter the bumper as a fixed alarm target), and the far-end distance is the furthest distance value in the area.

B、More Setups:



a. Alarm mode:

All: Early warning of the nearest target in the setup area, including moving and stationary objects。

Approach: Alerts the target that is closest to the sensor in the set area and is moving closer.

b. Alarm Speed: The host computer has a built-in GPS module that can identify the vehicle's own speed, and can set a minimum and maximum speed value to limit the speed range of the sensor warning.

c.Export Log： A TF card can be inserted on the right side of the main unit of the touch panel and can be set to export the recent warning counts to the TF card.

```
time:2024-09-29 15:33:35, x:0.4, y:1.2, v:1.0, warnLevel:3
time:2024-09-29 15:33:35, x:0.4, y:2.2, v:0.0, warnLevel:2
time:2024-09-29 15:33:31, x:0.6, y:2.2, v:0.0, warnLevel:2
time:2024-09-29 15:33:23, x:0.6, y:2.0, v:0.0, warnLevel:2
time:2024-09-29 15:33:19, x:0.2, y:2.2, v:0.0, warnLevel:2
time:2024-09-29 15:33:17, x:0.2, y:1.0, v:0.0, warnLevel:3
time:2024-09-29 15:33:13, x:0.4, y:1.0, v:0.0, warnLevel:3
time:2024-09-29 15:33:13, x:0.3, y:1.6, v:0.0, warnLevel:2
time:2024-09-29 15:33:12, x:0.2, y:3.2, v:0.7, warnLevel:1
time:2024-09-29 15:33:12, x:1.0, y:2.8, v:1.0, warnLevel:2
time:2024-09-29 15:33:11, x:0.8, y:3.2, v:0.0, warnLevel:1
time:2024-09-29 15:31:57, x:0.4, y:1.0, v:0.0, warnLevel:3
time:2024-09-29 15:31:53, x:0.4, y:1.0, v:0.0, warnLevel:3
time:2024-09-29 15:31:53, x:0.8, y:3.6, v:0.0, warnLevel:1
time:2024-09-29 15:31:51, x:0.2, y:1.0, v:0.0, warnLevel:3
time:2024-09-29 15:31:51, x:0.8, y:5.6, v:0.0, warnLevel:1
```

Time: warning date and time;

X,Y value: warning bearing and distance;

V: warning speed;

WarnLevel: warning level.

d.Time Zone： Local time zone can be set for GPS calibration of the displayed time.

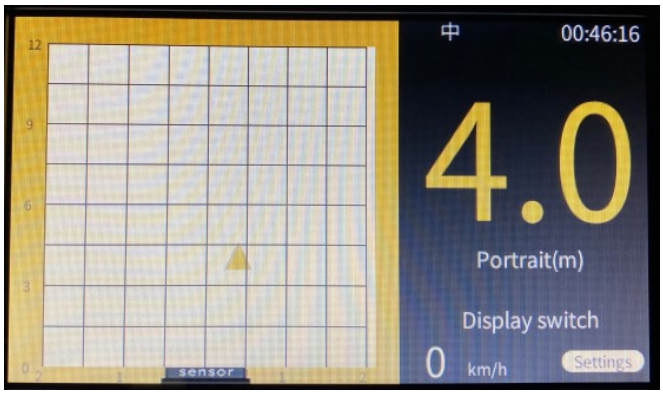
e.Set Radar ID： Used to set the sensor to communicate with the touch screen host when a new sensor is connected.。

C、Early warning effects:

Level 1 warning (farthest area): the screen lights up a green box, showing the distance, and the buzzer does not sound;

Level 2 warning (middle area): the screen lights up the yellow box, shows the distance, buzzer rings at intervals;

Level 3 warning (nearest area): the screen lights up the red box, showing the distance, buzzer long sound.



Illustrate：

1、Colour box corresponds to the alarm level, which is green, yellow and red respectively.

2、The number displayed on the right side is the distance value of the latest target in metres.

3、The triangle mark in the colour box is the position coordinate of the nearest target relative to the sensor.

V. Installation Instructions

Please read the usage precautions carefully before installation! ! !

(1) Please keep the sensor cover clean during installation. To clean the cover, wipe it with a soft damp cloth and then air dry naturally;

(2) Please pay attention to the shape of the sensor when installing, ensure that the installed sensor is not deformed, and do not squeeze, bump, or beat;

(3) When installing, try to stay away from locations with strong magnetic field interference such as frequently started high-power electrical equipment and motors;

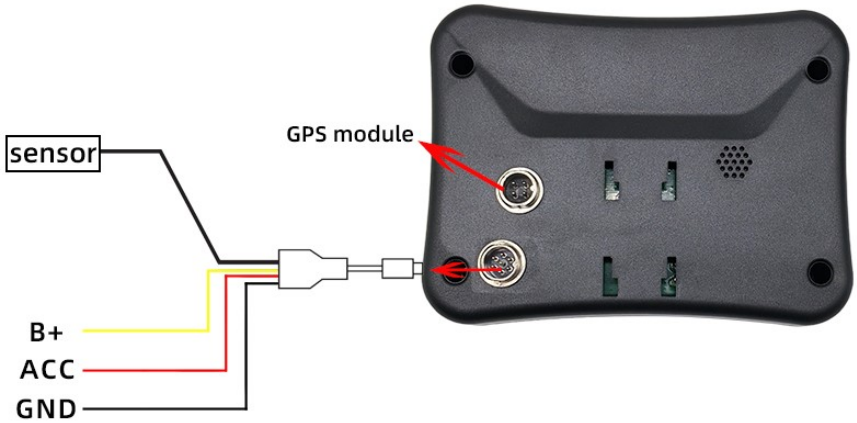
(4) During the test, there should be no obstructions within the sensor beam range, and the test environment should be as open as possible to avoid affecting the measurement results.

Installation and coordinate system:

1)Installation direction: The triangle mark on the front of the sensor module faces upward, and it is installed vertically and horizontally (due to the small pitch angle of the antenna, try to keep it vertical to the ground during installation);

2) Installation location: It is recommended that the installation height be 0.5~1.5m from the ground; if the installation height is less than 0.5m, the upward installation angle needs to be adjusted appropriately; if the installation height is greater than 1.5 meters, the installation downward angle needs to be adjusted appropriately.

VI. Line Connection Legend



There are two ways to connect the power cord:

1. The sensor does not need to be triggered and works directly with power: the yellow wire + red wire are connected to the positive pole of the power supply,The black wire is connected to the negative pole;

2. The sensor needs to be triggered, such as when reversing the car, it will work: the red wire is connected to the positive pole of the reversing light, and the yellow wire is connected to B+,The black wire is connected to the negative pole.