Copyright Notice

Thank you for choosing vehicle detection sensor. This kind of sensor is widely used with parking barriers and to detect the area beneath the barrier arm, which ensures that if target remains under the barrier arm, the barrier will not go down which can avoid the damage to the target.

To ensure the best performance of the sensor product, firstly please carefully read this user manual,and then install and debug it strictly following the instructions provided in this manual.

***Specifications &designs may be changed without prior notice.

Content

1.Introduction 3

2.Technical Specifications 4

3.Features 5

4.Installation Instructions 6

5.Cable interface Definition 8

6.Configuration Instructions 10

7.Remarks 13

8.Common problems 14

9.Packing List 15

1.Introduction

Vehicle detection sensor is developed for the entrance and exit management of parking lots or underground garages.It can precisely control the up&down of the barrier arm by cooperating with the gate main control unit , which could effectively avoid the "accidental injury" of the barrier arm to the passing vehicles or pedestrians which in the sensor field of view,and realize intelligent anti-fall function.

The sensor is radar sensor and adopts millimeter wave technology with the highly integrated RF chip SOC scheme, which has the characteristics of small size, low cost, all-weather working capability, high detection sensitivity, high precision,easy debug&installation, very good stability and reliability.

The sensor antenna adopts multiple transmitting and multiple receiving design that enables the sensor good angular resolution and high angle measuring accuracy. The signal processing and control unit apply DSP+ARM dual core architecture. Through the joint optimization design of software and hardware, this product can accurately identify and distinguish the targets passing through the barrier arm area, and avoid the accident of "damage the targets such as vehicle or person" and "not dropping arm".

2.Technical Specifications

Terms	Parameter	Value
Working Condition	Input Voltage	9 ~ 24V
	Temperature Range	-40℃~ 85℃
	Power	< 2.5W
	Protect Level	IPX5
	Connection Interface	RS485; Bluetooth
	Size	107.9*73.6*17.2mm
	Unit Gross Weight	104g(without packing)
Detection Zone	Left/Right side	Default±0.5m (configurable within ±1.5m)
	Front	Default 3m (configurable within 6 m)
Upgrade and Debug	Online debugging	Serial Port/ Bluetooth Debug
	Online update	Serial Port/ Bluetooth Upgrade
Application type	For all types of barrier arm	

3.Features

Sensor appearance shown in Figure 1. The main features are:

- **LED indicators:**

Two LED indicators on the front of sensor.
Red LED is for power, it will stay on when power on.
Green LED is for signal, it will stay on when objects detected in the detect area and goes off when there is no objects.

- **Detection zone configuration:**

sensor default detection range is 3m in front and 0.5m left & right sides(±0.5m).
Different detection areas can be configured via mobile APP or laptop debugging software.

- **Configuration parameters saving and reload:**

Configuration such as detection area can be automatically saved, and the latest configuration parameters will be loaded after sensor power off and restart.

- **Firmware upgrade:**

The firmware can be upgraded online through App or RS-485 ,no need to dismantle the sensor, and the new firmware will be effective just by restarting the sensor power.

- **Stable performance:**

millimeter wave sensing capablity is strong and work perfectly under different light illuminations, dimates such as rain, fog or snow and dust.

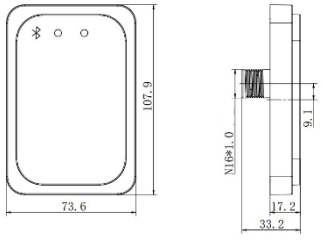
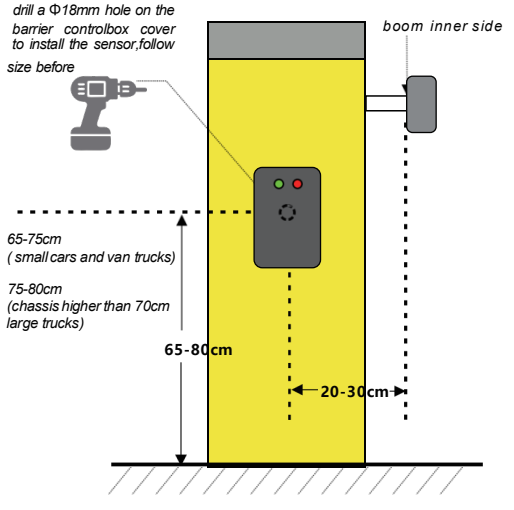


Figure 1. appearance (picture for reference only)

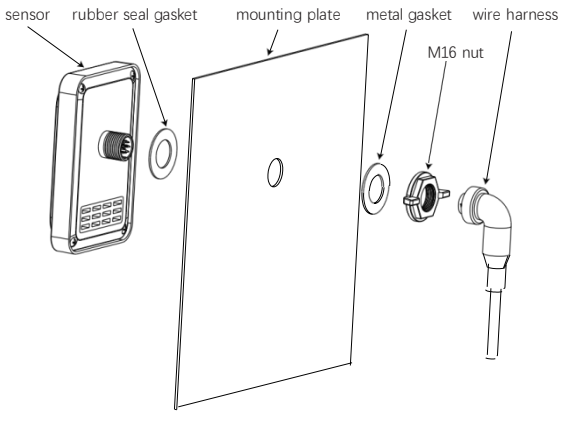
4.Installation Instructions

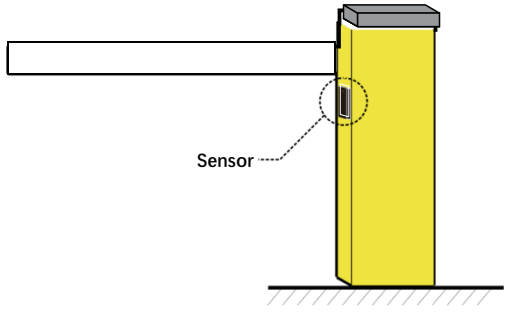
The sensor should be installed on the surface of gate box body and the sensor should be vertically to the lane. The installation must follow the below steps:

Step1. mounting position



Step2. mounting process





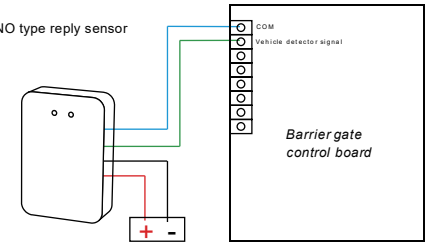
5.Cable Interface Definition



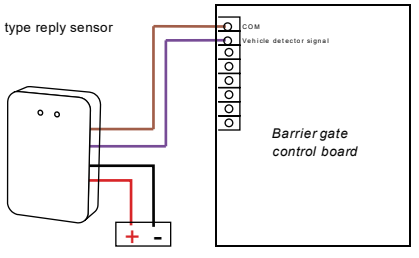
NO.	Color	Identification	Description	Wiring
1	red	9 ~ 24V	Power	red wire connected to positive power supply
2	black	GND	GND	black wire connected to negative power supply
3	gray	A+/TX	A+	gray wire "A +" connected toT / R + terminal of 485;
4	white	B-/RX	B-	white wire "B-" connected totheT/R- terminal of 485.
5	blue	Normally Open Signal Wire	NO1	connected to the ground induction coil terminal and COM terminal of the gate control box (no distinction between positive and negative). see below pics.
6	green		NO1	

NO.	Color	Identification	Description	Wiring
7	brown	Normally Close Signal Wire	NC1	connected to the ground induction coil terminal and COM terminal of the gate control box (no distinction between positive and negative).see below pics.
8	purple		NC1	
9	orange	Input	Input	spare wiring
10	yellow	GND	GND	

For NO type reply sensor



For NC type reply sensor



After background learning, click Show false alarm to view false alarm. During the process of show false alarm, do not do other operations except stop display.

Other detailed operations can be seen in the product manual and app manual.



Figure 11

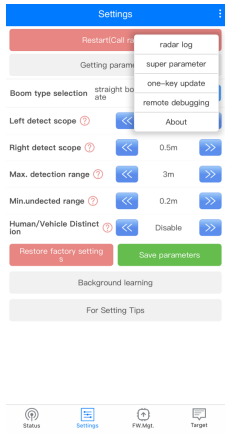


Figure 12

6.Configuration Instructions

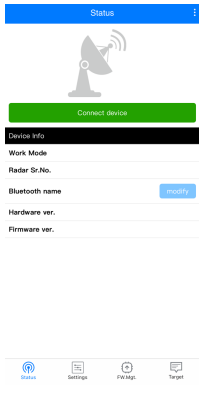
The sensor can be debugged through either the mobile App or the debugging software on laptop.

Mobile App debugging instructions:

After downloading the App to the mobile phone, click the App icon and see the user interface as Figure 5.

Click Connect Device button as shown in Figure 6, and select "Radar..." Bluetooth pairing connection

Bluetooth connection
bluetooth name: "Radar···" or " Mbit..."
user password: 88888888. as shown in Figure 7.



Figure

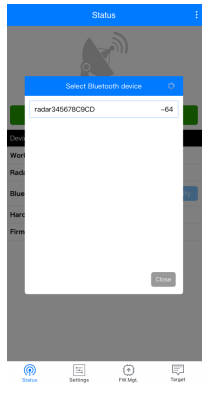


Figure 6

After successful connection, as shown in Figure 8, and enter App(App interface as Figure 9,10,11).

7.Remarks

Please read the following instructions carefully before using sensor:

- Ensure stable power supply to avoid affecting the sensor performance, It is recommended to use 12A/1A power adapter separately for power supply.
- Sensor antenna is integrated inside. if sensor surface covered with other things(such as water drops, snow, dust, etc.) which may affect the normal operation of the sensor, it shall be deaned in time.
- If environment changes (such as installing the guide column, ice cream cone, etc.) in the detection area, please learn to record the environment again.
- There shall be no objects (such as metal fence, billboard, license plate recognition camera, wall, etc.) in the sensor detection field which will affect the normal operation.
- It is not recommended to use sensor in a single lane where different types of barriers installed.
- it is recommended to install 2 sensors or remote control barrier arm when for entry&exit of semi trailer, concrete mixer, and other vehicles which chassis higher than 1m.
- It is not recommended to install sensor on muddy roads &extreme weather (rainstorm, heavy snow) which may affect the sensor operation stability.
- Set the detection range based on the barrier arm length, normally this range is slightly less than or equal to the barrier arm length, so as to prevent people or objects from being detected by sensor when.passing beyond the gate arm.
- When environment record & learning, the fence / advertising type arm may shake when it falls to the ground. operation can be carried out after the arm falls completely.
- Relearn the background If there is arm rebound caused by the sensor.

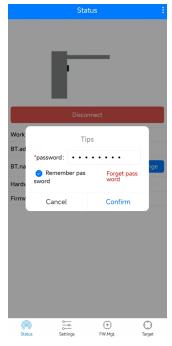


Figure 7

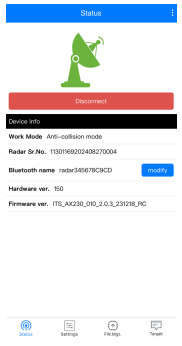


Figure 8

The sensor parameters can be modified and the background can be learned according to the actual environment. After selecting the firmware for sensor firmware upgrade, dick upgrade firmware and wait for the upgrade to complete.



Figure 9

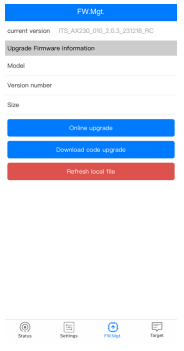


Figure 10

- The installation height of the sensor should be 75-80cm in case of the metal strong scatterers like deceleration belt (for example iron plate) are directly in front of the sensor.
- Sensor applicable power supply : 9~24VDC. preferred 12V/1A power supply or connected to camera 12/24VDC power supply.

Please contact us first when the radar working environment is special, and then install it correctly according to our suggestions.

8.Common problems

1-Q:The sensor green light always on after installation and the barrier arm doesn't fall.

A: new enhanced reflectors within the sensor detection range need to be removed from sensor field of view or background learning should be carried out again.

2-Q: the person stand in front of the sensor, the green light is not on.

A: The sensor is activated Pedestrian / Vehicle classification function, when vehicles trigger the sensor and green light on,The sensor then can detect.

3-Q: The sensor red light flashes.

A: It is recommended to connect an extra 12V-1A power adapter.





Vehicle Detection Sensor

User Manual

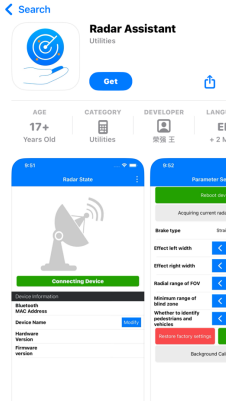
please carefully read this user manual before installation.

9.Packing List

No	Parts	Q' ty
1	Sensor	1
2	M16 nut	1
3	Gasket	2
4	Wire harness	1
5	Certificate	1
6	User Manual	1

Mobile debugging App download:

Search "radar assitant" in App Store and download



android phone download