

Radar Sensor

V3.0 for straight boom gate



1. Introduction

This manual is suitable for barriers such as anti-smashing and other occasions. The following will describe the application scenarios, installation, parameter settings, debugging and precautions of the radar, and guide you to correctly install and use the barrier radar. This radar adopts the most integrated 24G radar single-chip transceiver solution, which has the characteristics of high technical content and strong professionalism. Please read the product installation and debugging manual carefully before use.

2. Product overview

2.1, product features

This millimeter-wave radar adopts the 24-26GHz single-chip transceiver chip and multi-layer composite PCB antenna imported from Germany. Due to the characteristics of high integration, high bandwidth and low noise, the radar's working frequency spectrum and measurement accuracy are stable, and it can be applied to channel Gate anti-smashing and other occasions.

2.2 Application scenarios

1. Regional detection and triggering of various climatic

environments.

2. Triggering and anti-smashing applications of all straight bar gates

3. Radar technical parameters

1. Input voltage: DC9-24V 200mA
2. Operating frequency range: 24-24.5GHz
3. Modulation mode: FMCW
4. Transmitting power: 10-12dBm
5. Horizontal beam: $<30^{\circ}$
6. Vertical beam: $<17^{\circ}$
7. Detection distance: 1-6 meters, ± 0.1 meters.
8. Working temperature: $-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$
9. Protection grade: IP67

4. Radar installation specification

1. Please use a power adapter with 9-24VDC 1A or above for independent power supply.
2. When using the gate controller for power supply, please ensure that the output current is not less than 200mA
3. When applied to the lane, the best height between the radar center and the ground is 55-60cm.

5. The radar installation surface should be perpendicular to the horizontal plane and be fixed reliably.
6. The ground within the detection distance should be flat without any obstacles. When the angle between the passing vehicle and the radar is greater than 30 degrees, please set up roadblocks to guide the vehicle to pass.

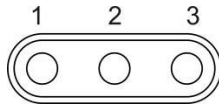
5. Wiring definition

| Color | Definition |
|--------|------------------------------|
| Red | Power input +12VDC |
| Black | Power input GND |
| Purple | Function switch input |
| Brown | Function switch input ground |
| Green | RS232(RX) |
| Blue | RS232(TX) |
| White | Relay normally open COM |
| Yellow | Relay normally open NO |

6. Radar parameter setting

6.1. How to read the menu number

As shown in the figure below: The indicator lights are numbered 1, 2, 3 from left to right.



Menu number read:

The No. 1 indicator turn red is menu No. 1.

The No. 2 indicator turn red is menu No. 2.

The No. 3 indicator turn red is menu No. 3.

6.2 How to read parameters (blue light)

1. The method of reading parameters is the same as above, and the blue light flashes reading plus 0.5. Take setting the detection distance as an example:

No. 3 blue light is always on for 3 meters, No. 3 blue light is flashing for 3.5 meters, No. 1 and No. 3 blue lights are always on

Lights up to 4 meters.

2. The boom gate closing speed parameter*2 is the actual setting parameter, for example, the No. 3 blue light is on for $3*2=6$ seconds, and the No. 3 blue light flashes for $(3+0.5)*2=7$ seconds.

6.3. Menu setting function comparison table

Menu number and setting function comparison table
(the following are factory default parameters)

| Menu | Setting function | Default |
|------|---|---------|
| 1 | Set the distance:1~6 meter | 3meter |
| 2 | Set sensitivity: 1 is low(detect car only), 2 and 3 is middle and high(detect car and people) | 1 low |
| 3 | Boom gate closing speed: reading 1-6 corresponds to time 2-12 seconds | 6s |

7. Radar parameter setting and saving

Step 1: Enter the menu: press and hold the setting button (do not release) until the menu number to be set is selected and then release the button, the corresponding parameter blue light will be on

Step 2: Change parameters: Change the current parameters by jogging the setting key.

Step 3: Save the parameters: long press the setting button, the red indicator lights 1, 2, and 3 flash at the same time and then release, the parameters will be changed and saved.

8. On-site debugging

1. After the brake lever is raised, the palm will trigger the radar at close range, and the gate will automatically close after leaving. Within the set detection distance, the brake lever will rebound when the human body approaches the brake lever. When the human body is far away from the brake lever, the brake lever can automatically close the brake in place. (When used for high-speed gates, change the closing speed parameters to adjust the response speed of the radar)

9. Product warranty

9.1. This product can be replaced for free for 7 days due to quality problems, and the warranty is 1 year. Product failure caused by the following conditions is not covered by the warranty:

9.2. Improper use environment or conditions, such as unqualified power supply and ambient temperature exceeding the product

product failure due to the upper limit.

9.3. Failure or damage caused by accident, misoperation, or manual disassembly.