

Shenzhen Waytronic Electronic Co., Ltd

WT4101A-C04 microwave radar induction module user datasheet

V1.01



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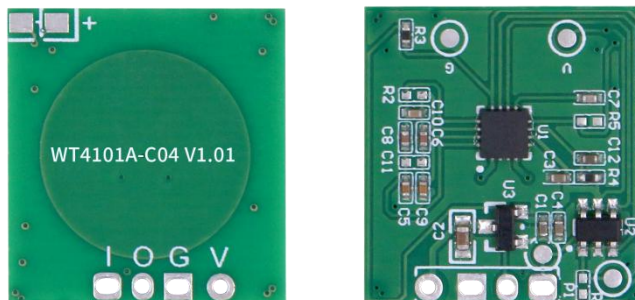
Version update

Version number	Version Modification Instructions	Date changed
V1.00	Original version	2024-08-01
V1.01	Module optimization	2025-07-08

1. Product Introduction

1.1. Overview

Microwave radar is an electronic device that uses electromagnetic waves in the microwave band to detect and identify moving targets. Its core principle is to emit microwave signals and receive the echo reflected by the target, and to judge and sense the target by analyzing the time delay, frequency change, phase difference and other information of the echo.



1.2. Characteristic

- Small size, low power consumption.
- Strong ability to resist environmental interference, not affected by temperature, humidity, air flow, dust, noise, light and dark.
- Strong penetration, can penetrate acrylic, glass and thin non-metallic materials.
- Built-in MCU, embedded multiple digital filtering algorithms, integrated with 50Hz/60Hz, power frequency interference filtering algorithm and WiFi and other wireless communication interference algorithm, with higher anti-interference degree.

2. Product features

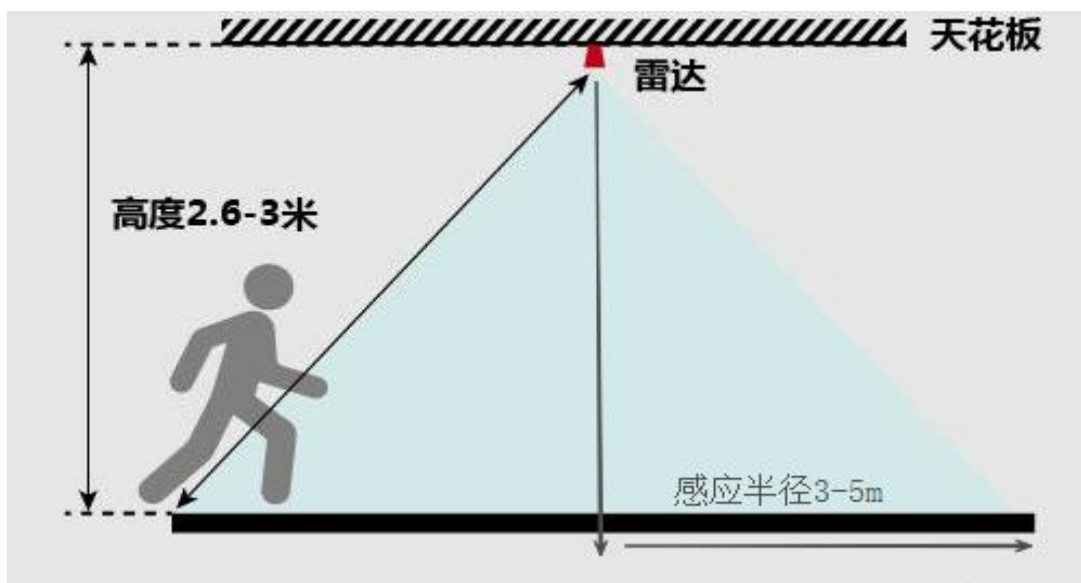
2.1. product features

- Induction distance range: forward 1~13m,
- The hanging height is 3m, and the induction distance is 3-5m
- Transmission power: 3dBm
- Operating frequency range 5.725GHz ~ 5.875GHz
- Operating voltage: 4V ~ 12V
- Operating current: Default 880uA, 9.6mA high power consumption mode
- Integrated 50Hz/60Hz power frequency interference filtering algorithm.
- Integrated WiFi and other wireless communication interference algorithms.
- Integrated photosensitive detection function, adjustable photosensitive intensity.
- Module size: 19.5mm*18mm*1.6mm
- Working temperature: -20~85°C

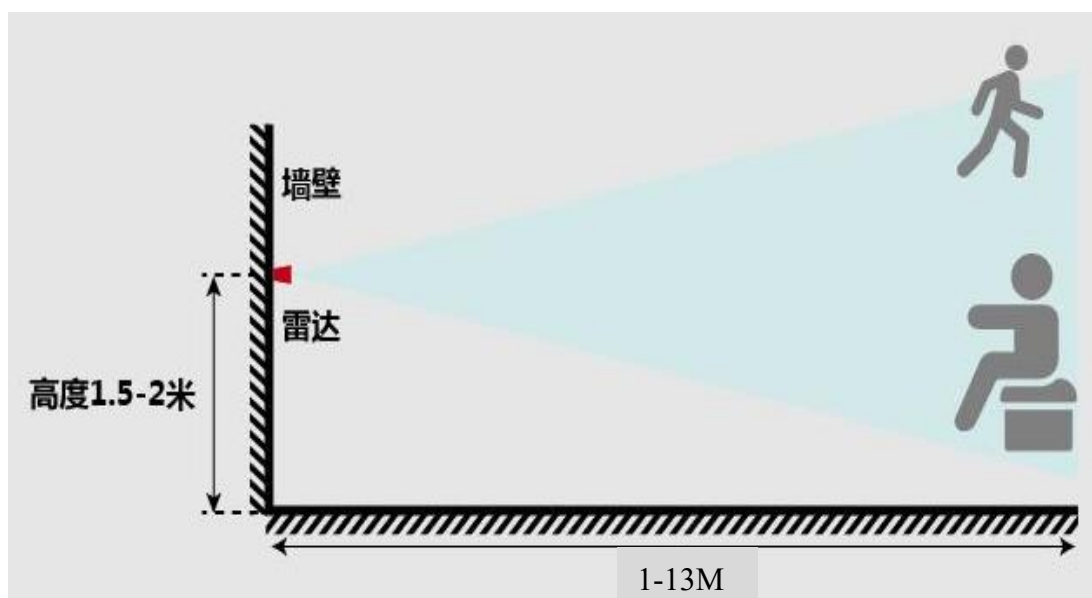
2.2. output characteristic

- Output signal: IO/PWM
- Output voltage: 0/3.3V.
- Output delay: 3s

2.3. Detection schematic diagram



Hang a high detection chart



Looking at the detection diagram

Note:

The test distance range is tested in the indoor installation environment. The height of the tester is 170cm, the weight is 65-75kg, and the walking speed is 1m/s. The distance may vary depending on different installation scenarios, and the actual test is subject to the actual test.

3. Application area

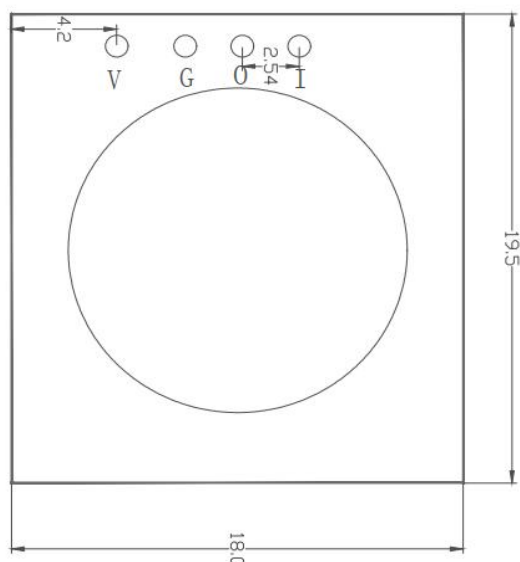
smart home : Perceive human movement to wake up panels, switches, door locks, doorbells, etc.;

Smart security: Inductive access control, induction alarm, trigger linkage applications and cameras.

Smart lighting: Can be used for public or home lighting equipment such as induction ceiling lights, bulb lights, panel lights, downlights, mirror lights, etc.

4. Size diagram and pin description

4.1. Dimension diagram (unit mm, tolerance ± 0.2)



4.2. Pin description

pin	explain
V (VIN)	Power supply 4-12V
G(GND)	landing
O(OUT)	Analog output
I(IO)	Reserve not to connect

5. Induction distance gear configuration (see configuration document)

6. Precautions for use

1. During module installation, it is recommended that the antenna board should keep a distance of 2.5-12mm from the metal plane, and should not be close to or contact the metal plane.
2. The module has a good penetration effect on plastic and wood materials. It is recommended not to install metal, glass or ceramic in front of the antenna to avoid affecting the actual induction effect.
3. Use a power supply with small ripple to avoid interference and false alarm of the sensor. It is recommended that the power supply ripple should be guaranteed within 50mV-100mV.
4. When multiple radar sensors are applied in the same site, it is recommended that the installation distance of the products should be more than 2m. If the installation distance is too close, some sensors may occasionally misreport.
5. The antenna radiation surface should avoid the coverage of large current circuits, so as not to interfere with the normal radiation of the antenna, resulting in false alarm or change of induction range.
6. If the microwave sensor is used together with wireless communication modules (NB, Bluetooth, WIF1, 2.4G module), the distance should be separated. It is recommended to keep a distance of more than 1m from high-power wireless communication devices such as routers and wireless hotspots during installation.
7. The antenna surface of the microwave sensor should avoid facing the drive power supply, and try to stay away from the rectifier bridge, transformer, switching tube and other high-power components of the drive power supply, so as not to cause false alarm.