ZIGBEE HUMAN PRESENCE RADAR (MILLIMETER WAVE)

eWeLink support
Works with everything

MG1-5RZ—MANUAL

CONTENTS

1. Instruction

The human presence sensor is based on the enhanced Doppler radar signal processing system and the physiological parameters of the human to realize human biological motion perception.

Synchronous perception technology can realize wireless perception of personnel status in specific places, and realize scene linkage through wireless signal notification gateway;

Suitable for homes, hotels, offices and other places.

2. Features:

- Detect and synchronously perceive the status of people, whether they are in motion or static(sitting, micro movement)；
- Continuously detect the status of stationary person to ensure real-time data output;
- It can quickly detect the distance of human from the radar;
- It can detect various motion amplitude and ensure real-time data output;
- Limit the detection objects to persons with biological characteristics(moving or stationary), and eliminate the interference of other inanimate objects in the environment;
- Effectively eliminate interference from non living objects and also achieve detection of non living moving objects.

3. Technical Advantage:

- Strong environment adaptability：Not affected by light, sunshine, temperature, haze etc.
- Higher accuracy of speed, distance and angle measurement

- Simple and fast：real-time output of measurement data

- Safe：no privacy leakage

- Low output power, no harm to human body

Comparison of different types of body sensors

Name	Presence Detection	Proximity/Distance Detection	State Detection	compared with millimeter wave technology
PIR Infrared sensor	✘	✔	✘	When the human body is static, it cannot be detected. It is greatly affected by environmental temperature changes, with high false alarm rate and uncontrollable distance
Infrared array module	✔	✔	✘	Easily affected by environmental heat sources, the cost is high
Ultrasonic transducer	✘	✔	✘	It can only measure the large motion amplitude, and the distance is only 3-5m, so it cannot realize high-precision parameter measurement
Heart rate sensor	✘	✘	✔	not convenient to wear
Camera	✔	✔	✘	Image, video and other unstructured data, high post-processing requirements, privacy risks
Millimeter wave radar	✔	✔	✔	_

4. Parameters

Voltage input: AC 110V~220V

Communication protocol: Zigbee

Communication distance: 100m(Open area)

Radar frequency: 5GHz

Transmitting power of millimeter wave radar：≤10dBm （10mW）

Detection Angle: A three-dimensional fan-shaped area with a horizontal angle of 90°and an elevation of 60°. When monitoring vertically downwards, the detection surface is oval.

Response speed: It will report in about 0.5 seconds when the human body is detected. After the person leaves, report on none within about 1 minute.

Working temperature：-10℃~+55℃

Working humidity: Relative humidity ≤ 95%RH

Product size：Φ80x45.5mm

Installation barrel diameter: 65~70mm

Installation method: Ceiling mounted

5. Installation Height:

The recommended installation height is ≤ 2.75m, with a horizontal vertical angle of 90° to the ground and a horizontal deviation angle of≤3°, ensuring that the main beam of the radar covers the detection area and that there are no obvious obstructions or coverings in front of the radar.

90°

2.75M
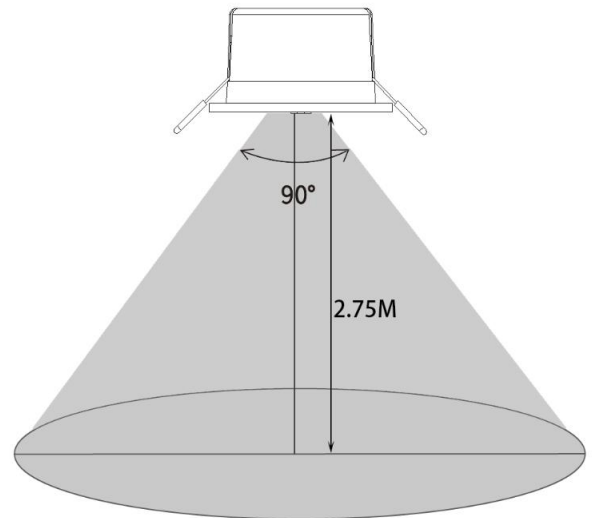
6. Installation instructions:

According to the layout of the room, select the installation location with effective detection range to ensure that the room can be effectively covered.

The embedded size of the product is 65mm. It is suggested to open a standard hole with a diameter of 65-70mm on the top of the decoration.
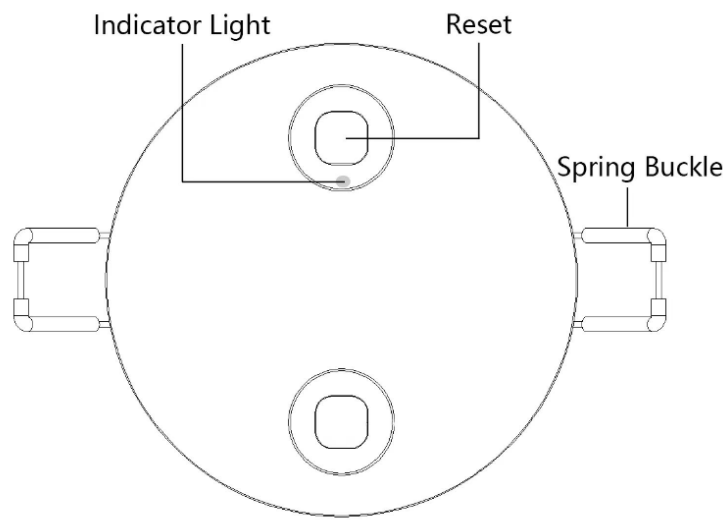
Lead out the wire from the opening, strip the lead wire and connect it to the product wire, it is recommended to use the internal power supply, no positive and negative points of the double line.
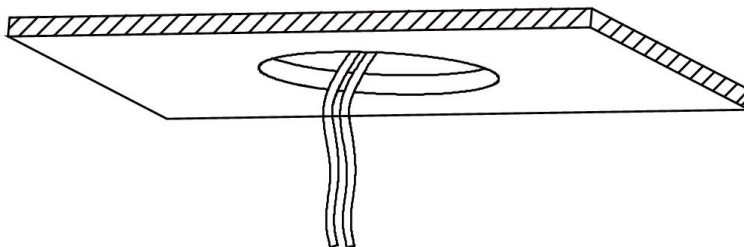
Refer to the picture to fix the spring buckle

Spring buckle
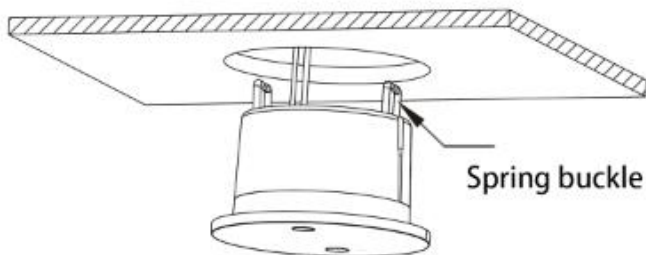
7. Illustration

8. Network Pairing:

(1) Connect the Micro USB cable to power up the eWeLink Zigbee gateway. It is recommended to maintain a long-term power on state;

(2) Gateway distribution indicator light: The blue light quickly flashes to indicate that the network pairing is in progress. Click "Add" to proceed;

(3) Radar search indicator light: Enter the gateway and click on "Add Device". The green light flashes to indicate that the radar device is being searched. Once the search is successful, click "Add".

1) After the product is powered on, press and hold the reset power button for 5-10 seconds to get into network pairing mode.
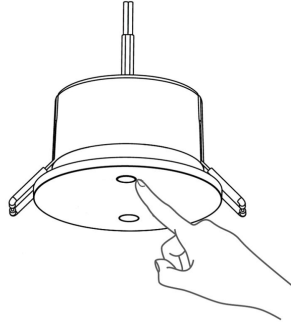
2) You will see the red light blinks rapidly. When the red light is steady on, the network is successfully connected, light off in monitor mode.

3) Download eWeLink APP

Scan to download "eWeLink" free App

4) Connect Zigbee gateway before adding the human presence radar sensor

5) Open the Zigbee gateway and select add sub device. At this time, the gateway will automatically search for devices and follow the prompts of eWeLink APP to complete the distribution network.

9. App UI

← Human Presence Sens... ⊙ ···

Status
Person present

2023.05.24 17:44:32 Person present

History Record

← History Record

24/May.

17:44:33
Person present

------- No more updates. -------

🗑 Clear

← Device Settings

Basic info

Name	Human Presence Sensor ›
Current Version: 1.0.0	Latest Version ›

Shortcuts

Assign location	›
Share	›
Sensitivity	›
Detection duration	›

Device Settings

Push notification	⊘

Device info

|	
Device ID	a40000f0d1
FW Name	CK-BL702-MWS-01

10. Detection Range

The sensitivity of radar to human body sensing varies in different states (static, moving). When the installation height is about 2.75 meters, the installation direction is vertical downwards. The following diagram shows the ceiling installation.
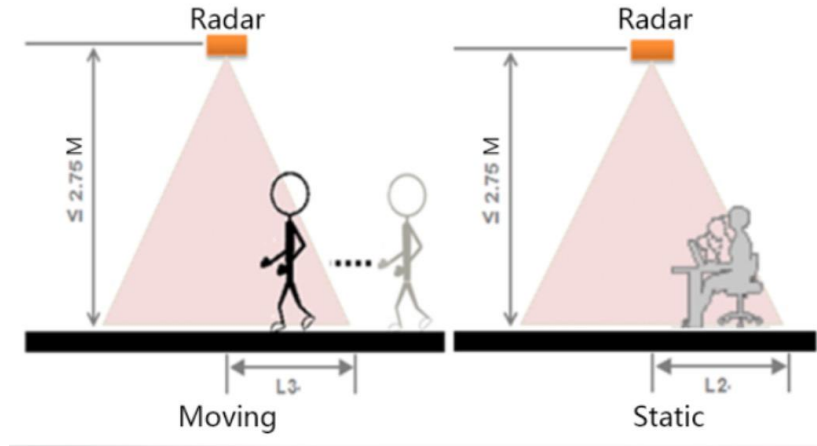
Affected by the radar installation height and radar beam range, in the state of no interference, the maximum distance L2 and L3 for human motion and static detection is a radius of 4m. (Note: there will be an error of ±0.5m in the movement monitoring range due to different installation environments.)

Radar range parameter diagram:
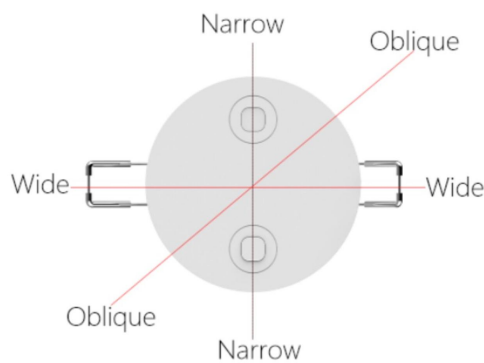
The monitoring range for different application scenarios and sensitivities varies. Please refer to the following chart:

(Note: this data is only used as reference data, and there may be an error of ± 0.5m between the actual detection distance and the reference data.)

Moving, micro motion/ static monitor distance		Unit: m(Radius)	
Angle|Sensitivity	High	Middle	Low
Narrow angle	4m	3m	2m
Wide angle	4m	3m	2m

Function supplements:

◆ Sensitivity setting: Sensitivity can be set on the APP, and the moving, micro motion/sit monitoring distance of the radar varies under different sensitivities; (For specific data, please refer to the moving, micro motion/sit monitoring distance chart)

◆ Resident time setting: You can set the resident time on the APP (range: 01min~11h59min), and the system defaults to report the unmanned state for about 1min.

◆ Motion monitoring function: When a person is moving within the motion monitoring range, the radar will report someone, and the reporting time is about 0.5 seconds; When a person keeps moving within this range, the radar will continuously report an active state; When a person leaves the motion monitoring range, the radar will report unmanned status, and the default time for reporting unmanned status is about 1 minute.

◆ Micro motion/sitting monitoring function: When a person is stationary within the micro motion/sitting monitoring range, the radar will report someone state within 0.5 seconds. As long as the person does not leave the micro motion/sitting monitoring range, it will continuously report a stationary state; When a person leaves the static monitoring range and the dynamic detection range, the radar will report the unmanned status, and the reporting time is about 1 minute.

11. Precautions

◆ No interference: The radar can pass through cotton fabrics and clothes without being affected by light and fog;

◆ Weak interference: Radar can pass through a certain thickness of wooden boards, glass, gypsum board walls, and plastic, ensuring that there are no issues with daily home environments;

◆ Strong interference: Radar cannot pass through metal, so do not be obstructed by metal;

◆ If a single radar cannot cover a certain area, the number of radars can be increased. Installing less than 3 radars in the same area will not cause mutual interference;

◆ It is best to install the radar in the same direction to avoid interference from the opposite side of the radar;

◆ The radar needs fixed installation, and vibration and shaking may cause false alarms in the radar;

◆ Startup time description: Due to the fact that when this product starts working after initial power on, it is necessary to completely reset the internal circuit of the module and fully evaluate the environmental noise in order to ensure the normal operation of the module. Therefore, during the initial power on operation of the module, it is necessary to have a stable power on time of ≥ 30 seconds to ensure the effectiveness of subsequent output parameters.

12. Troubleshooting

◆ No one，but a false report into a human state:

1）If the wall is too thin, the radar signal sweeps through the wall to the person next door, and false report happened;

2）Radar power is unstable, causing false report;

3）Moving objects, such as fans, wind-blown plants or swaying metal, large pets, electric fans, working washing machines and so on cause the false report.

◆ There is someone, but mistakenly reported that there was no one:

The human body is out of range or obscured by metal and thick desks and chairs.

13. Warranty Card

Warranty policy

- Within 7 days from the date of sale, if the product experiences performance failure, consumers can choose to return, exchange, or repair it;
- Within 15 days from the date of sale , if there is a performance malfunction, consumers can choose to exchange or repair it;
- Within 12 months from the date of sale, if there are any quality issues with the product, we can provide you with warranty services.

Non warranty policy

- No "three guarantees" certificate or the validity period of the "three guarantees" is exceeded;
- Damage caused by failure to use, maintain, and store according to product instructions;
- Damage caused by unauthorized disassembly and repair by our company;
- Damage caused by force majeure;

- The normal fading and wear of the product during use are not covered by the warranty.