Dry contact human presence
sensor
User Manual

1. Product parameters

1.1 Main parameters

Model		5.8GHz	24GHz
		MTD061-RC	MTD261-RC
Name		Description	
1	Size	The maximum diameter of the outer edge is 50mm, and the height is 37mm; Circular hole with a diameter of 40-42 mm	
	Colour	White	
	Weight	≤30g	
2	Beam angle	120×120°, the angle at which the signal energy decays by 3 dB (0.5 times) relative to the front 0 °	115×115°, the angle at which the signal energy decays by 3 dB (0.5 times) relative to the front 0 °
	Ceiling mount: Detection radius	· Breathe: 2.5 ~ 3 m · Micromotion: 3 ~ 4 m · Motion: 4 ~ 5.5m	· Breathe: 2 ~ 3 m · Micromotion: 3 ~ 4 m · Motion: 4 ~ 4.5m
	Ceiling mount: Installation height	Typical height：2.7～3.5m	
	Sensitivity	1-9: Min 1, Max 9; Default 7 **Note:**The larger the value, the more sensitive it is. Sensitivity within 6 can only achieve motion detection, while 7-9 can achieve respiratory detection.The reliability of existence is related to the delay of "manned to unmanned ".	
	Detection range	0-10m; Default is 7m	0-12m; Default is 7m
		Note: 1.Detection distance refers to the maximum distance from a straight line that a sensor can detect moving, micro moving, or breathing targets, rather than the maximum diameter or radius mapped to the ground 2.Distance is not absolute distance, sensor detection has a distance resolution, the resolution is about 1m. For example, if the value is 3m, it is normal to trigger within the range of 3m ±1m 3.The distance value is mainly used as a filter glass partition, gypsum board, wood partition.Such as 3m, at 3m ±1m may also have missed alarm, miscontact.	
	Delay (manned to unmanned)	5s ~ 1500s; The default is 15s. It is recommended that the actual use should not be less than 30s, because too small is easy to miss the report **Note：** 1.The time is manned to unmanned; 2.The sensor triggers within the delay time and continues to delay; 3.The longer the delay, the smaller the sensor miss probability, and the breath detection delay is not less than 60s.	
	Entry filter time (unmanned to manned)	0-100s; Default 0.1s; Set step: 0.05s **Note：** 1.The setting time is long, the sensor response is slow, and it is not easy to trigger by mistake; The time setting is short, the sensor response is fast, and the error probability is increased; 2.>0.25s is slow response.	
	Sensitivity	1-9,default is 7.The smaller the value, the less likely it is to trigger incorrectly, while the larger the value, the easier it is to trigger; **Note：**Sensitivity refers to the degree to which the sensor is triggered when the	

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			target enters the detection range.	
	Detection shield distance (manned to unmanned)		0-9m; Default is 0.6m; The larger the value, the greater the distance indentation.	0-12m; Default is 0.6m; The larger the value, the greater the distance indentation.
	Light perception		0～1000Lux **Note**： The detection value is not absolute light value, which is limited by factors such as installation direction and light Angle, and can only roughly reflect the ambient brightness trend.	
	Linkage control		Support linkage control and dynamic parameter configuration	
3	micro wave	Working frequency	5.8 GHz ±75 MHz，ISM 波段	24GHz ±125 MHz，ISM 波段
		Transmission power (Pt)	3～5 dBm	10dBm
		Modulation mode	FMCW、CW	FMCW、CW
4	Working voltage		DC9～36 V，Typical 12 V	DC9～36 V，Typical 12 V
	Working power		＜1.5 W	＜1.5 W
	Working Temperature		-5℃~+50℃	
	Storage temperature		-20℃～65 ℃	
	Working humidity		5～90% RH（No condensation）	
	Working altitude		0-3500m	
	Waterproof		IP20	
5	Output mode		Relay output; Voltage ≤ 30V, current ≤ 2A	Relay output; Voltage ≤ 30V, current ≤ 2A
其他	Installation requirements		Installation height: 2.7-3.5m; Installation method: Ceiling mount; Hole size: Round hole with a diameter of 40-42 mm	
	Input terminal		Wire harness connection, comes with a 0.1m wire harness, it is recommended to use terminal blocks for extension	
	Restricted use scenario		1.Elevators, metal board rooms (less than 6m×6m space), metal sealed toilets and other similar all-metal sealed spaces; 2.Scenes where the surface area of metal decorative materials in the non-ceiling area exceeds 20%	1.Elevators, metal sealed toilets and other similar all-metal sealed Spaces 2.Scenes where the surface area of metal decorative materials in the non-ceiling area exceeds 20%

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1.2 Product Default Settings

NO.	Parameter	Value
1	Detection distance (max)	6m
2	Detection distance (min)	0.6m
3	Admission confirmation time	0.1s
4	Departure delay time	30s
5	Trigger sensitivity	7
6	Maintain sensitivity	7
7	Entrance distance indented	0.6m
8	Illumination threshold	0：close

1.3 Detection range: Ceiling mounted

The following diagram is a schematic diagram of the detection area for "ceiling mounted" installation.

(1)"Breathe" (standing still, squatting still, sitting still, sleeping, etc.)

(2)"Micro movement" (lifting hands, getting up, flipping through a book, shaking the body left and right, etc.)

(3)"Movement" (walking, running, circling, jumping, etc.)

Ceiling mount 2.7~3.5 m

Range

"Breathe"

"Micro movement"
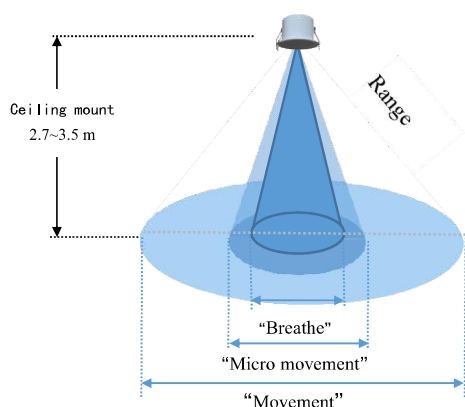
"Movement"

5.8GHz radar

Detection range (related to installation height and sensitivity parameters)：

● Ceiling mount detection radius：Breathe 2.5～3 m

● Ceiling mount detection radius：Micro movement 3～4 m

● Ceiling mount detection radius：Movement 4～5.5 m

524GHz radar

Detection range (related to installation height and sensitivity parameters)：

● Ceiling mount detection radius：Breathe 2～3 m

● Ceiling mount detection radius：Micro movement 3～4 m

● Ceiling mount detection radius：Movement 4～4.5 m

Note:

1.The above range values are based on the reference of the ceiling mount height of 3m and the length and width of 10x10m in the conference room scene.
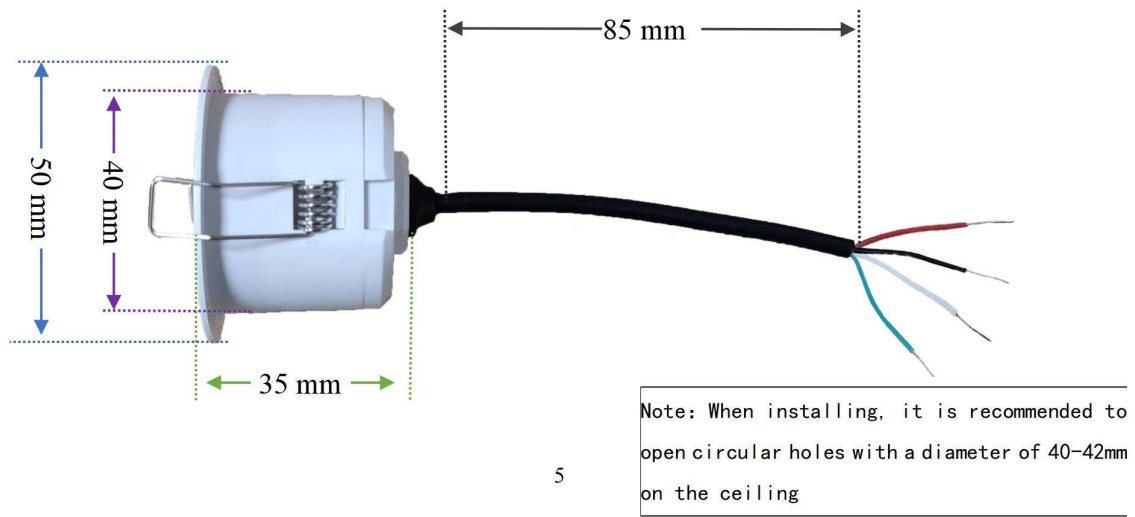
2.There may be certain differences in different scenarios

2. Interface size

2.1 Interface

Positive

Negative

S1

S2

NO.	Colour	Function
1	Red	Positive
2	Black	Negative
3	White	S1
4	Green	S2

2.2 Size

85 mm

50 mm

40 mm

35 mm

Note: When installing, it is recommended to open circular holes with a diameter of 40-42mm on the ceiling

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2.3 Wire

Connect the external power and signal cables to the sensor harness and lead them into the ceiling opening.

3. Product installation

1. According to the scope and shape of the area to be tested, choose a suitable installation position on the ceiling to ensure that the testing area can be covered.

2. The edge diameter of the equipment is 50mm, and the embedded part is 40 * 35mm (cylindrical). A circular hole with a diameter of 40-42mm can be opened on the ceiling, and the minimum reserved space at the top is not less than 50mm.

3. Clamp the power and signal cables onto the equipment (gently clip the cables, otherwise they may be easily cut) and introduce them into the ceiling opening.

4. Insert the device into the ceiling hole to complete the installation.

Installation diagram
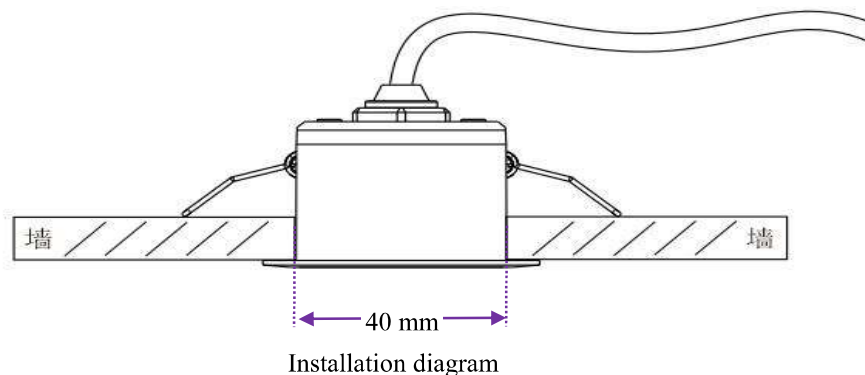
4. Product use

4.1 Output signal connected to user system

Connect the reed tube output S1 and S2 of the sensor to the user system.

S1 and S2 terminals have no electrical connection with the sensor. When the presence of a human body is detected, terminals S1 and S2 are connected; Otherwise, terminals S1 and S2 will be disconnected.

4.2 Power supply

Provide 9-24V DC power supply for sensors.

4.3 Remote Control Configuration Parameters

Configure parameters such as "detection distance", "sensitivity", "delay time", and "light intensity"

Tip: Refer to the "Remote Control Setting Parameters" section in Chapter 5.

4.4 Recommended parameter configuration for different scenarios

Scenario	Scenario requirements	Installation requirements	Parameter configuration recommendation
Home bathroom Toilet	Breathe detection Micro motion detection Motion detection	Bathroom and toilet: 0.4-0.6m in front of the top of the toilet.	1. Sensitivity：7~9； 2. Detection range：2.5~3.5m； 3. Manned to unmanned delay time more than 60s
Living Room Restaurant Meeting Room	Breathe detection Micro motion detection Motion detection	1. Living room: 0.5~1m in front of the sofa 2. Restaurant: Center of the table 3. Meeting Room: The central axis of the long side of the conference table	1. Sensitivity：7~9； 2. Detection range：4~9m； 3. Manned to unmanned delay time more than 60s
Bedroom Study room	Breathe detection Micro motion detection Motion detection	1. Bedroom: Within the bed area 2. Study room: within 0.6-1.5m before and after the desk	1. Sensitivity：8-9； 2. Detection range：5.5~9m； 3. Manned to unmanned delay time more than 180s

Attention: Please refer to the above table for scene parameter settings, otherwise the best sensor effect will not be achieved!