



Model No.: MSA021D RC
Lifebeing Sensor User's Manual

ATTENTION

1. The product shall be installed by a professional electrician. Please disconnect the power before installation and wiring. Before the product is powered on, please confirm that the input voltage range meets the requirements of the manual.
2. Please read the relevant contents in this manual carefully before using the product.
3. This product is designed for indoor use only.
4. Ensure that the product is installed in a relatively dry and ventilated environment.
5. Keep away from metal plates, concrete walls, and beams during installation to avoid blocking microwave signals.
6. Install the sensor as far as possible from glass, wood, gypsum board and other materials that are easily penetrated by microwaves to avoid false triggering.
7. Avoid long-term vibrating equipment or moving objects around the sensor. The vibration signal will be regarded as the motion signal to trigger the sensor.
8. If a pet passes by in the detection area, it may trigger the sensor.
9. The sensor should be installed far away from wireless devices such as network switches and routers, and installation interval should be at least 2 meters to avoid radio interference.
10. In order to ensure the accuracy of presence detection, the sensor should be installed in the area of personal activity and avoid installing behind the person.

Product Introduction

This product uses Merytek 5.8GHz high-gain microwave presence sensing technology, which can detect the large-scale movement and the tiny movements in a static state (such as: waving hands, shaking the head, and chest and abdomen expansion during breathing) of the human body to determine whether there are people in the detection area. MSA021D RC is powered by a 12V/24V low-voltage DC power supply, and uses a silent reed switch normally open relay, which is closed when there is motion detected and disconnected after the preset "Hold time" elapses when there is no one. Connect various intelligent control systems through output switches.

Parameters

Operating Voltage	12/24Vdc ± 0.5 Vdc
Operating Mode	Dry Contact (Normal Open)
Load Capacity	Resistive load: 36V, 50mA max.
Operating Frequency	5.8GHz \pm 75MHz
Detection Area	25%/50%/75%/100%, set by DIP switches or remote controller.
Hold Time	5s, 30s, 1min, 5min, 20min, 30min, set by DIP switches or remote controller.
Detection Range (Radius)	Big motion (Walk Signal): 3-4m Slight motion (move head, raise hands etc): 3-4m Breathing (Stationary state): 2-3m
Mounting Height	2.5-4m
Installation	Flush Mounted
Operating Temperature	0°C - 50°C
Storage Temperature	-35°C - 80°C

Human motion signal interpretation



Big motion signal activates

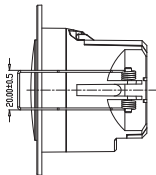
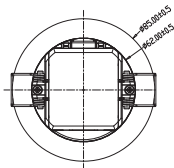
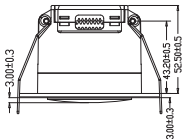


Minor motion maintains

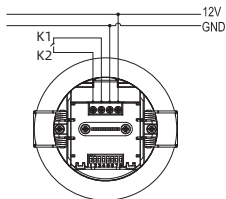


Breathing maintains

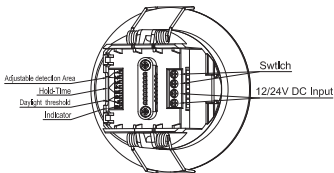
Dimension (mm)



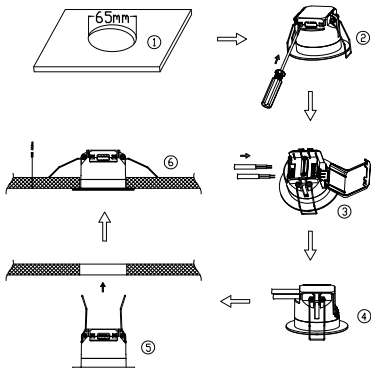
Wiring



Structure



Installation Instruction



1. Cut a hole of 65-70mm on the ceiling.
2. Open the button of the rotating protective cover to the maximum state.
3. Wiring (Note that the input and output cannot be reversed).
4. Install the screw of the line clasp and rotate the protective cover on the cover.
5. Bend the spring clamp backward to push the pre-opened hole in the ceiling.
6. Ensure smooth and reliable installation.

Instructions

1. **Initialization:** After power on, the indicator light flashes for 20 seconds and then turns off. During initialization, the sensor does not detect external movement signals. After the initialization is completed, it enters the normal working state.
2. **Block Time:** The sensor blocking time is 2s once the sensor is turned off after the "Hold time" elapses. During the blocking period, the sensor will not detect external human body signals.
3. **Parameter settings:**
 - 1) **Detection Area**
The higher the detection area setting, the larger the detection radius

	1	2	Detection Area	Motion Detection Coverage	Breathing Detection Coverage
I	ON	ON	100%	Approx.25m ² (5x5m room)	Approx.36m ² (6x6m room)
II	-	ON	75%	Approx.16m ² (4x4m room)	Approx.25m ² (5x5m room)
III	ON	-	50%	Approx.4m ² (2x2m room)	Approx.16m ² (4x4m room)
IV	-	-	25%	Approx.1m ² (1x1m room)	Approx.4m ² (2x2m room)

Remarks:

The detection sensitivity of the sensor is closely related to the height and moving speed of the person, the installation location of the sensor, whether there are obstructions, and the reflection of metal or glass. The data in the table is for reference only and was tested by a 165cm person, facing the sensor with no obstructions on his chest and belly, walking slowly at 0.3m/s in an open area with the sensor mounted of 3 meters. The detection area selection is subject to on-site installation environment adaptation.

2) Hold Time

When no one is detected, the relay will be disconnected after the "Hold time" elapses. Only Big motion can be detected if the "hold time" is set to "5s", no breathing detection function. Presence sensing (Minor motion and Breathing) can be realized if the "hold time" is set to "30s" or longer. In order to ensure the detection effect, please set the "hold time" to "1min" or longer if it is a single-person space. At the same time, the "hold time" is not recommended to be set to more than 5 minutes, so as to avoid the interference of other motion signals in the detection area.

	3	4	5	
I	ON	ON	ON	5S
II	ON	-	ON	30S
III	ON	ON	-	1min
IV	ON	-	-	3min
V	-	ON	ON	5min
VI	-	-	ON	10min
VII	-	ON	-	20min
VIII	-	-	-	30min

3) Daylight Sensor

When someone enters the detection area, the relay does not close when the surrounding environment illuminance is higher than the preset daylight threshold, and the relay closes when it is lower than the preset value. The lights or the air conditioner can be automatically turned on/off through the intelligent system. When set to "Disable", the "daylight sensor" is not functioning. If someone enters, the relay will be closed, and the system will turn on the lights or turn on the air conditioner regardless of the surrounding environment illuminance.

	6	7	Daylight sensor	Illuminance
I	ON	ON	5Lux	Dark
II	ON	-	25Lux	Twilight
III	-	ON	50Lux	Slightly bright
IV	-	-	Disable	No "daylight sensor" function

4) Indicator Light

Detected big / minor movement signal: real-time flashing

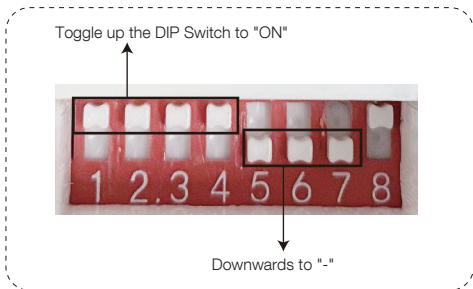
Detected breathing signal: flash three times quickly

	8	Status	
I	ON	Open	Turn on the indicator light
II	-	Close	Turn off the indicator light

4. DIP Switch Setting Indication: (The following figure)
Toggle up the DIP Switch to "ON", downwards to "-"

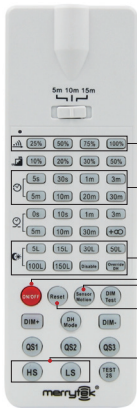
Take the sensor settings "Detection area: 100%, Hold time: 1min, Daylight sensor: Disable, indicator light: on" as an example, toggle the settings according to the below picture:

DIP Switch numbers 1-4 are toggled up, DIP Switch numbers 5-7 are toggled down, and DIP Switch number 8 is toggled up. Other settings can be deduced by analogy.



Remote Settings

* The remote control is optional. If necessary, please purchase it separately.



1. Detection Area Setting
2. Hold Time Setting
3. Daylight threshold setting (Daylight sensor setting).
4. ON/OFF: Press "ON/OFF" button, the sensing function is canceled, and the relay is normally closed or normally open. To return to sensing mode, you can switch off the mains or press the "Sensor Motion" button.
5. Sensor Motion: Switch from "ON/OFF" mode to sense mode.
6. Reset: Press "reset" button to factory settings. Factory default setting: Detection Area: 100%, Hold time: 1min, Daylight sensor: Disable.
7. HS: Turn on the indicator light,
LS: Turn off the indicator light.

Remarks: This remote control is a universal remote control for Merrylek sensors, which is suitable for many models. The buttons not mentioned in the manual do not need to be used.

FAQ

Fault	Cause	Remedy
The sensor is self-triggered or the load will permanently illuminated	Microwave can penetrate glass, wood and other non-metallic materials.	Reduce the detection area.
	The sensor is installed close to the wireless device.	Installed the sensor 2 meters away from the wireless devices.
	There are vibration or jitter signals in the installation environment.	1. Make sure that there are no other motion signals in the space, such as vibrating equipment, rotate fan, curtain swinging. 2. Reduce the detection area.
The load will not illuminate despite movement or breathing	The position of the person exceeds the coverage area of the breath signal detection.	Adjust the installation position.
	The installation position of sensor is behind or to the side of the person.	Adjust the sensor installation position and make sure to install the sensor above the front of the person.
	The microwave signal is blocked by obstacles.	Adjust the sensor installation position and keep it away from obstacles.
	The ambient light level is higher than the threshold value.	1. Check if there are other light-emitting objects or lamps in the environment. 2. Increase the threshold value or cancel the daylight sensor function.

After-sales and Warranty

1. Free maintenance service is provided for failures caused by the product during the warranty period.
2. Damages that are not caused by our company's actions such as handling, dropping, installation, use, maintenance, and improper storage by the user are not covered by the warranty.
3. Unauthorized smearing or tampering with labels, model no., product appearances, and circuits are not covered by the warranty.
4. Man-made damage caused by unauthorized disassembly and modification is not covered by the warranty.
5. Out-of-warranty products do not provide warranty services, and can provide paid maintenance services depending on the situation.
6. Damage caused by using without following instruction or due to force majeure factors, such as, fire, earthquake, etc., is not covered by the warranty.
7. Any exterior decoration and accessories of the body are not warranted, such as connecting cables, cabinets, panels, cabinet accessories, etc.

Merrytek Sensor Warranty Certificate

Customer Information:

Customer's Name _____ Male/
Female _____ Customer's Phone _____

Customer's Address _____

Product Details:

Product Name _____ Model No. _____

Batch Code _____ Date of Purchasing _____

Place of Purchasing _____ Invoice No. _____

Store Address _____

Merrytek Sensor Warranty Certificate

Customer Information:

Customer's Name _____ Male/
Female _____ Customer's Phone _____

Customer's Address _____

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