



Model: MSA001S 1

Microwave Sensor User's Manual

ATTENTION

- 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.
- Please read the relevant contents in this manual carefully before using the product.
- This product is designed for indoor use only.
- Ensure that the product is installed in a relatively dry and ventilated environment.
- Keep away from metal plates, concrete walls, and beams during installation to avoid blocking microwave signals.
- 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.
- 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.
- If a pet passes by in the detection area, it may trigger the sensor.
- 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.

Product Introduction

This product uses Merrytek 5.8GHz patent low impedance microwave sensing technology and detects human body, cars at low speed and other moving signals. It is not influenced by the changing of temperature and suitable for high and low temperature environment. It can resist interference from Wi-Fi, Bluetooth, 5G signals and other wireless signals. It has anti-false trigger algorithm and can resist trigger of mosquito, breeze, leaf fluttering and other interference signal.

This product has built-in relay that is used to control circuit on/off. Relay closes and connects to loads (electrical appliances) when detecting moving signals. Relay does not close when there is no moving signal after hold time ends. It is suitable for the intelligent lighting transformation of corridor, hallway, stairwell, storage room and other areas where people do not stay for long.

Parameters

Operating Voltage	220-240Vac, 50/60Hz
Operating Mode	ON/OFF
Rated Load (Note 1)	Resistive load (Incandescent lamp, ventilator etc): 800W Max., Capacitive load (Ballast, energy-saving lamps etc): 400W Max., LED: 400W Max.
Max. Surge Capacity (Note 1)	30A (50% I _{peak} , twidth=500uS, 230Vac full load, cold start)
Stand-by Power	0.5W Max.
Operating Frequency	5.8GHz±75MHz
Detection Area	25%/50%/75%/100%, set by DIP Switches
Hold Time	5s, 1min, 5min, 10min, set by DIP Switches
Daylight Sensor	5lux, 30lux, 50lux, Disable
Detection Range	Movement (Walk Signal): 2-3m (radius)
Mounting Height	2.5-4m
Cut Size	55mm(diameter)
Installation	flush mounted
Operating Temperature	0-50℃
Storage Temperature	-25-80℃

Note:

When the sensor is connected to the load, the cold start surge current of the electrical appliances in the loop cannot exceed this limit, otherwise the sensor will be damaged. It is recommended that this product be connected to a maximum of 4 loads, and the total power of the load and the surge current generated at the moment when the load input is powered on cannot exceed the rated requirements of the sensor.

Human motion signal interpretation

Explanation of human moving signals: this product is used to detect human moving signals only not including minor motion and breathing.



Big motion signal
activates

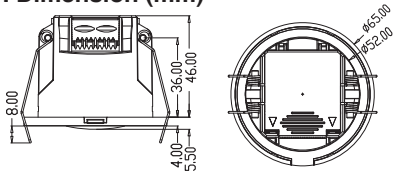


Minor motion
maintains

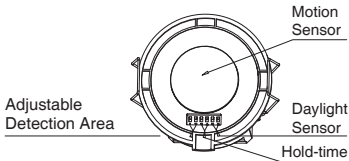


Breathing
maintains

1. Dimension (mm)

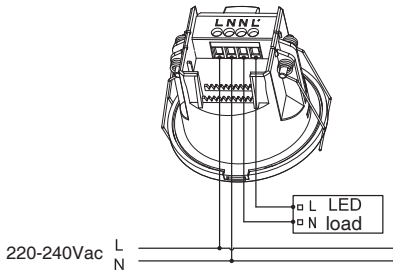


2. Structure

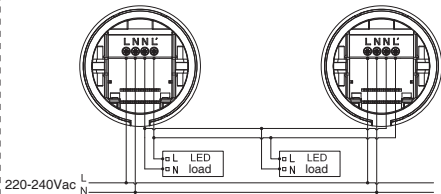


3. Wiring

Single Unit:



Multiple Unit:



Note:

1. It is recommended that this product be connected to a maximum of 4 loads, and the total power of the load and the surge current generated at the moment when the load input is powered on cannot exceed the rated requirements of the sensor.
2. The sensor L/N needs to be connected to the mains live and neutral wires, and L' and N need to be connected to the live and neutral wires of the load. Do not reverse the connection, otherwise the sensor will be damaged.

4.Function

● ON/OFF Function 1 (daylight sensor is set to “disable”)



1. Sensor turns on lights when people enter detecting area.



2. Sensor makes lights remain on when people is moving during hold time.



3. Sensor turns off lights after hold time ends when people leave detecting area.

● **ON/OFF Function 2**
(daylight sensor is set to “5lux, 30lux or 50lux”)



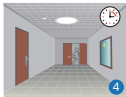
1. If environment illuminance is higher than the preset daylight threshold, sensor does not turn on lights when people enter detecting area.



2. If environment illuminance is lower than the preset daylight threshold, sensor turns on lights when people enter detecting area.



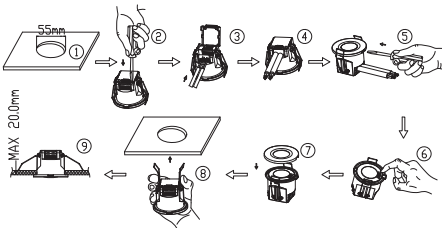
3. Sensor makes lights remain on if people are moving in detecting area.



4. Sensor turns off lights after hold time elapses when people leave detecting area.

5. Installation Instruction

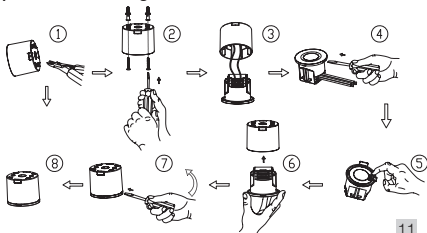
1) Flush mounting



1. Cut a hole of 55mm on the ceiling.
2. Remove the crimping cover using a flat-head screwdriver.
3. Connect input wire to wiring terminals
4. Assemble the wire cover and press the wire.
5. Remove the surface cover with a flat-head screwdriver.
6. Insert the device into the hole.
7. Secure the device with a screw.
8. Push the device into the ceiling.
9. The final flush-mounted device is shown with a maximum depth of 20.0mm.

6. Toggle DIP switches and set parameters.
7. Cover surface cover and make it be fastened to main body.
8. The spring clamp is bent backwards to push through a hole in the ceiling.
9. Ensure installation stable.

2) Surface mounting



1. Cut off thin wiring housing of ceiling mounting seat with a tool.
2. Use the matching screws to fix the product to the mounting surface.
3. Connect input wire to wiring terminals. Assemble cover and press wire tightly.
4. Remove the surface cover with a flat-head screwdriver.
5. Cover surface cover after toggling DIP switches and set parameters.
6. Fix product to mounting seat. The buckle will fasten the product avoiding falling.
7. To separate the product from ceiling mounting seat, insert a flat-head screwdriver into gap, lift the screwdriver, pry it down with the tip of screwdriver, and the product will pop out of mounting seat.
8. Ensure installation stable.

*The standard product does not come with mounting seat for ceiling mounting, if in demands, please contact the dealer or manufacturer to purchase separately.

6. 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" ends. During the blocking period, the sensor will not detect external human body signals.
- 3) Override Function: When power off, quickly switch ON/OFF sensor 3 times (ON-OFF-ON-OFF-ON) within 2sec to override sensor function. Lights will blink 3 times and sensing function is disable, and then lights remain on all the time. Power off and on again to recover sensor function.

4) Parameter settings:

- Detection Area

The higher the detection area, the larger the detection radius.

	1	2	Detection Area	Detection Radius	Motion Detection Coverage
I	ON	ON	100%	Around 3 meters	Approx.36m ² (6x6m room)
II	-	ON	75%	Around 2.5 meters	Approx.25m ² (5x5m room)
III	ON	-	50%	Around 2 meters	Approx.16m ² (4x4m room)
IV	-	-	25%	Around 1 meters	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, 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.

- Hold Time

When no one is detected, power will turn off after the time elapses.

	3	4	
I	ON	ON	5S
II	-	ON	1min
III	ON	-	5min
IV	-	-	10min

- Daylight Sensor

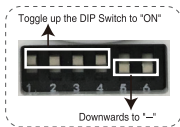
When someone enters the detection area, the relay does not close; when the surrounding environment illuminance is higher than the preset daylight threshold, the relay closes when it is lower than the preset and lights turn on automatically. When set to "Disable", the "daylight Sensor" is not functioning. If someone enters, the relay will close and lights turn on automatically 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

5. DIP Switch Setting Indication: (The following figure)

Toggle up the DIP Switch to "ON", downwards to "-"

For example, when setting detection area to 100%, hold time to 5s and daylight to disable, DIP Switch Setting will be like the right picture: toggling up DIP switches 1-4 and downwards DIP switches 5-6. The same goes for other settings.



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.
The sensor is not working	Reverse connection of input and output leads to sensor damage.	Replace the sensor
	The load exceeds the rated power of the sensor or exceeds the inrush current limit	Replace the sensor

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.



Scan the QR code to
view the user's manual

The Model No., parameters and performance of the product
in this manual are subject to change without further notice.

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