

# INSTRUCTION

Product Name: Motion Sensor

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Model No.: MSA001D

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Issue Date: 2021-06-09

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## Attention

1. The product shall be installed by a professional electrician. Please disconnect the power before installation, wiring or changing the setting by DIP switch
2. Please read the relevant contents of this manual carefully before using the product.
3. This product is only suitable for indoor environment.
4. Ensure that the product is installed in a relatively dry and ventilated environment.
5. Before the product is powered on, please confirm that the input voltage range meets the requirements of the manual.
6. Keep out of reach of children.

## 1. Features



- 1) Use patented 5.8GHz Low Impedance Microwave Antenna, anti wireless interference, such as Wi-Fi, Bluetooth, 5G etc.
- 2) Parameters can be set by DIP switch.
- 3) Compact size for Independent flush mounting.
- 4) Silent reed switch relays for some special application.

## 2. Parameters

<b>Input</b>	Rated Voltage	12-24V DC
	Max. Working Current	≤ 50mA
<b>Output</b>	Working Mode	P1-P2 is a normally open relay(please refer to 5.Wiring)
	Type of Load	Resistive
	Load Voltage	Vdc≤36V
	Load Current	50mA Max
<b>Sensor Parameters</b>	Operating Frequency	5.8 GHz ±75 MHz, ISM Band.
	Transmitting Power	0.5mW Max.
	Hold Time	5S/1Min/5Min/10Min
	Detection Area	100%/75%/50%/25%
	Daylight Sensor	5lux/30lux/50lux/Disable (diffuse state)
	Detecting Area (radius)	≥3m
	Mounting Height	2.5-4m
<b>Operating Environment</b>	Detecting Angle	120°
	Operating Temperature	0℃...+50℃
<b>Certificate Standards</b>	Storage Temperature	Temperature: -40℃...+80℃; Humidity: 10%-95% (non-condensing)
	Safety Standards	EN60730
	EMC Standards	EN300440 EN301489-1 EN55015 EN61547 EN62479
	Environmental Requirement	Compliant to RoHS
<b>Others</b>	Certificate	Compliant to CE, RED
	Wiring	screw type terminals, wire diameter: 0.75-1.5mm <sup>2</sup>
	IP Rating	IP20
	Protection Class	Class II
	Installation	Flush-mounted

	Cut size	Φ55mm-Φ60mm
	Package	White box+ White box tags+ Clapboard+ Carton(K=A)
	Net Weight	65g±5g
	Lifetime	5 years warranty

**Note :**

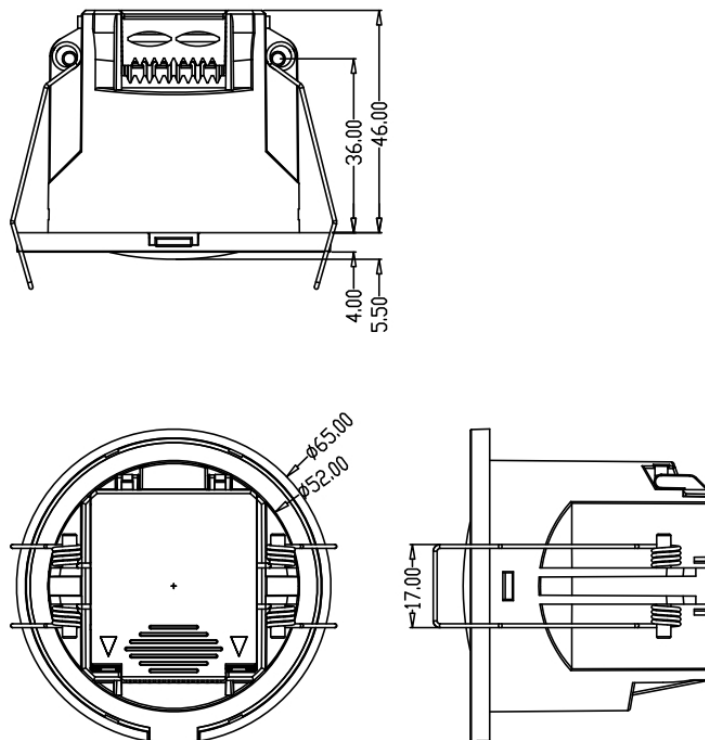
The detection range of the sensor is related to the moving speed and size of moving object, mounting height, installation height and angle, installation site, reflectors around the sensor etc. The data in the document is typical value and tested by a 165cm person in an open indoor area.

The detection range at wall mounting will be longer at ceiling mounting. Please reduce detection sensitivity at wall mounting or contact us to confirm the sensor data settings.

### 3. Function

This product is a dry contact motion sensor developed for the IoT sensing market. P1-P2 (please refer to 5.Wiring) is a normally open relay, when the sensor detects human, the switch is closed. When the sensor detects no one in the environment, the relay will be disconnected after a preset hold time. So that the smart home system can identify whether there are people in the environment according to the state of this switch.

### 4. Dimension (unit: mm)



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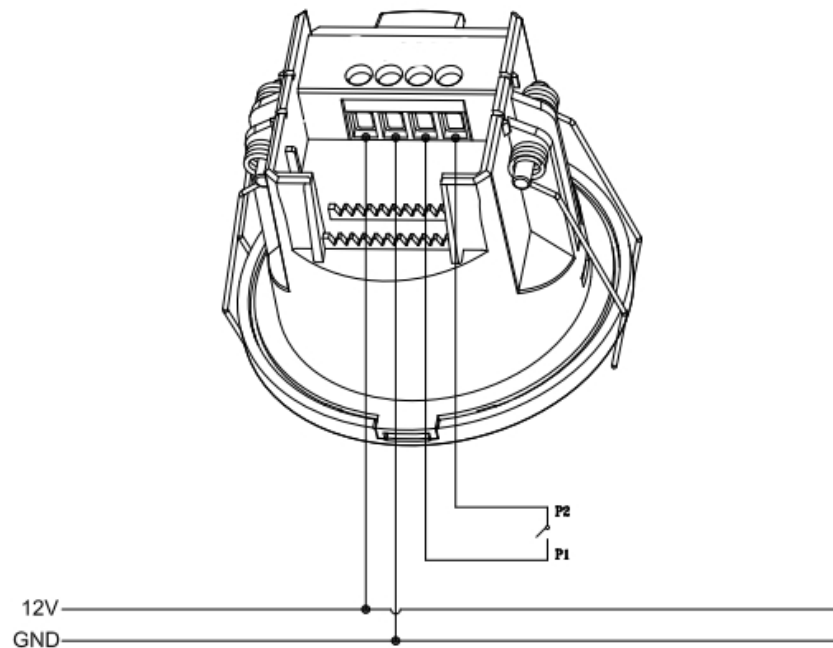
Tel: +86 (0)755-2305 7253

Fax: +86 (0)755-2786 3012

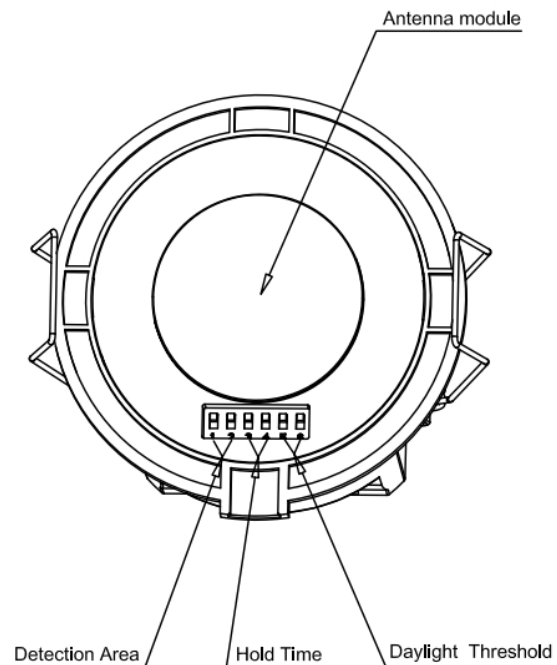
Website: [www.merrytek.com](http://www.merrytek.com)

All technical information is subject to the physical performance, Merrick reserves the right to final interpretation

## 5. Wiring



## 6. Structure



**Note:** Disconnect the power before parameter setting, no live operation!

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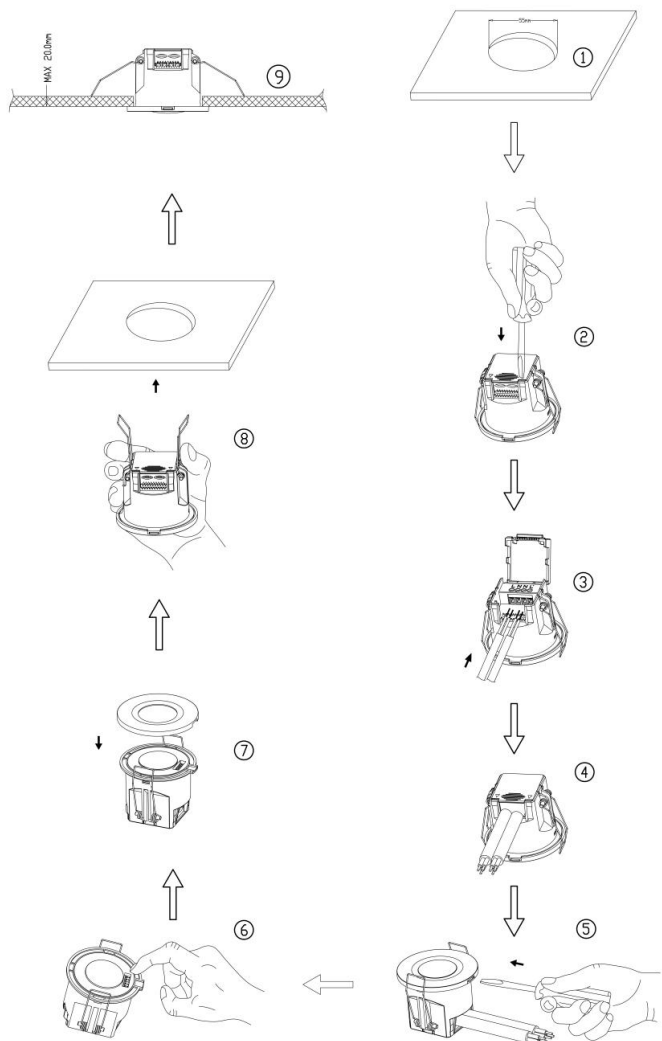
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## 7. Installation Instruction

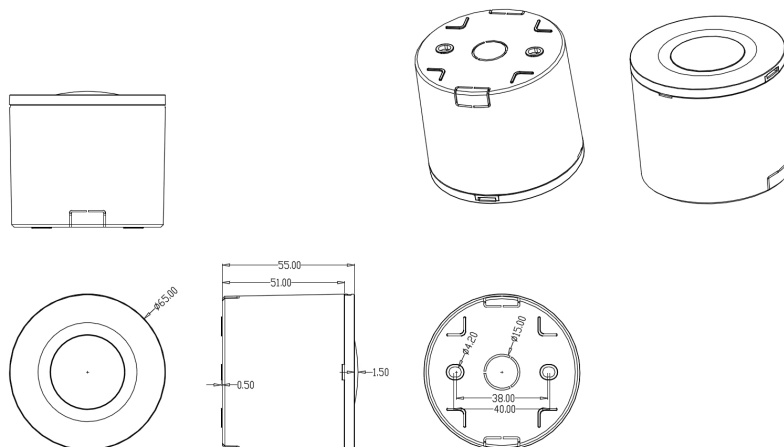
### 1 ) Flush mounting



1. Ceiling cut size  $\Phi 55\text{mm}$ .
2. Use a flat-blade screwdriver to remove the crimping cover.
3. Connect the wires to the wiring terminals.
4. Install the crimping cover and crimp the wire.
5. Use a flat-blade screwdriver to remove the surface cover.
6. Adjust the DIP to set the parameters.
7. Cover the surface cover back to make sure that it's fastened to the main body.
8. Bending the spring clip backwards to push into the pre-cut hole in the ceiling.
9. Ensure it's stable and reliable after installation.

### 2 ) Surface mounting

#### Plastic case pictures:



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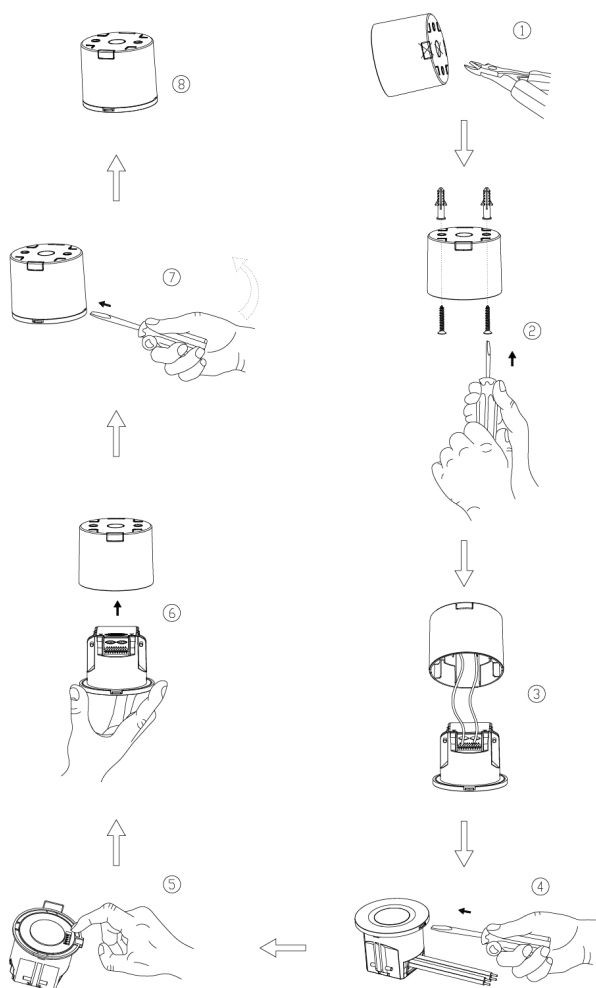
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## Installation step :

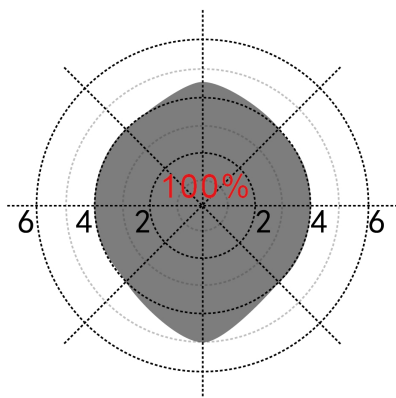


1. Cut off the reserved thin wall for the thread.
2. Fix the product on the target mounting surface by a matching screw.
3. Connect the input wire to the wiring terminal, and close the cover tightly.
4. Remove the top cover with a flat-blade screwdriver.
5. Adjust the dial code and the parameters, and then cover the top cover.
6. Push the product into the ceiling seat, the buckle will fasten the product to prevent it from falling off.
7. To separate the product from the ceiling seat, insert a flat-blade screwdriver to the disassembly gap, lift the screwdriver, and pry down with the tip, the product will pop out of the ceiling seat.
8. Ensure stable and reliable after installation.

## 8. Radiation Pattern

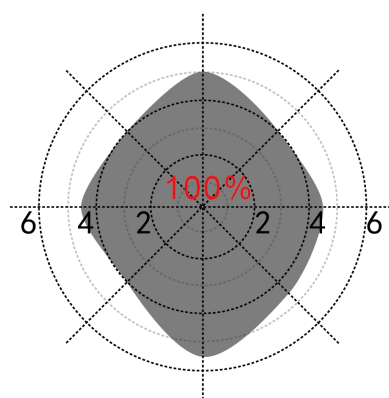
### Ceiling mounting

Ceiling mounted height: 3m  
Sensitivity: 100%/75%/50%/25%



Normal moving (Speed: 1m/s)

Ceiling mounted height: 3m  
Sensitivity: 100%/75%/50%/25%



Slow moving (Speed: 0.3m/s)

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## 9. DIP Switch Setting

### Detection Area

	1	2
100%	ON	ON
75%	-	ON
50%	ON	-
25%	-	-

### Hold Time

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

### Daylight Sensor

	5	6	
I	ON	ON	5Lux
II	ON	-	30Lux
III	-	ON	50Lux
IV	-	-	Disable

Note: when set to Disable, the sensor will turn on the light as long as the movement of the object is detected, regardless of whether the light is sufficient.

## 10. Initialization

After first power on, the light turns on and closes after 10 seconds. During the initialization, sensor is not able to detect moving objects signal.

## 11. Factory Settings

Detection Area: 100%

Hold Time: 5s

Daylight Sensor: Disable

## 12. Application Notice

- 1) The sensor should be installed by a professional electrician. Please disconnect the power before installing, wiring or changing the setting of the DIP switch.
  - 2) Put the sensor as far as possible from large areas of metal plate, glass and other materials with high medium density to avoid triggering by mistake.
  - 3) Avoid using objects that have been vibrating for a long time around the sensor, such as shaking fans, etc. The vibration signal will be regarded as the motion signal to trigger the sensor.
  - 4) Avoid the detection window of the daylight sensor of the detector irradiated by an invalid light source, which will interfere with the measurement of ambient light.
  - 5) The sensor should be installed at least 2 meters away from the wireless router.
  - 6) Sensor's microwave can penetrate wall of building. It may cause misreport when microwave penetrates wall to detect the moving objects outside fortified area. To avoid triggering by mistake, choose suitable place when installing, keep away from glass, plasterboard, wooden wall and other things that microwave can easily penetrate and choose appropriate sensing parameters according to space, for examples:
    - A. When product is used in the room whose length and width is about 2m or less, detecting area should be set to 25% (application scenario: washroom, sitting room )
    - B. When product is used in the room whose length and width is about 3m, detecting area should be set to 50% (application scenario: washroom, hallway, sitting room )
    - C. When product is used in the room whose length and width is about 4m, detecting area should be set to 75% (application scenario: small office, meeting room, library )
    - D. When product is used in the room whose length and width is about 5m or more, detecting area should be set to 100% (application scenario: large office, meeting room, library )
- Note: The setting detecting area depends on the actual environment (detecting area parameters above application scenario are for reference only).