

# SPECIFICATION

Product Name: Microwave Motion Sensor

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Model No.: MC087D


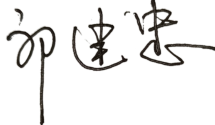
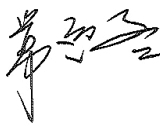
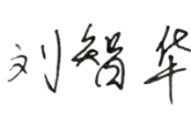
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Issue Date: September 06, 2022

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CUSTOMER APPROVED

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PRODUCT DIRECTOR APPROVED	P&M CHECKED	R&D CHECKED	PREPARED
			

\*Please read the 11th instruction carefully before using this product, since the performance of DC-powered microwave products is closely related to the stability and characteristics of the auxiliary power supply of the LED driver.

## 1. Features



- 1) Adopts Merrytek patented high gain microwave antenna, better metal environment adaptability. Smaller cut size
- 2) Build in microwave module and daylight sensor. 12V DC input and PWM dimming signal output.
- 3) Cut size: 10mmx40mm. Suitable for most liner lights.
- 4) All parameters can be set by dip switches.
- 5) 5 years warranty

## 2. Parameter

<b>Input</b>	Input Voltage Range	8-15VDC
	Rated Input Voltage	12V DC
	Operating Current	<25mA
	Voltage Ripple	<100mVp-p
<b>Output</b>	Working Mode	5V PWM Dimming Signal
<b>Sensor Parameters</b>	Operating Frequency	5.8 GHz $\pm$ 75 MHz, ISM Band.
	Transmitting power	1mW Max.
	Detection Area	100%/50%
	Hold time	5S/5min/10min/30min
	Stand-by Period	5min/15min/30min/+ $\infty$
	Daylight Sensor	30Lux/50Lux/100lux/Disable Daylight priority: ON / OFF value (30Lux)50Lux / 150Lux 100Lux / 200Lux (ambient light diffuse reflection conditions)
	Stand-by DIM Level	10%/30%
	Detecting Radius	mounting height 3m, 1m/S $\geq$ 3m
	Mounting Height	3m (6m Max )
	Detecting Angle	90°@Xz plane / 130°@Yz plane
<b>Operating Environment</b>	Operating Temperature	-25°C...+70°C
	Storage Temperature	-40°C...+80°C Humidity: 85% (non-condensing)
<b>Certificate</b>	Environmental Requirement	Compliant to RoHS
<b>Others</b>	Wiring	3 pin 2.0mm fast connector
	IP Rating	IP20
	Installation	Base installation

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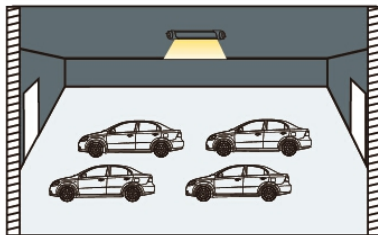
<b>Others</b>	Dimension	See dimension
	Package	card +cartons (K=A)
	Net Weight	18g
	Lifetime	5 years warranty@Ta

**Note:**

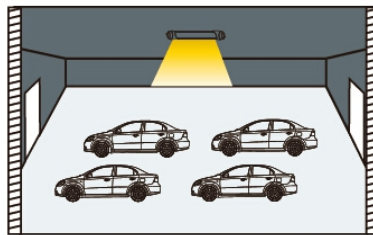
1. "N/A" means not available.
2. The detection range of the sensor is related to the moving speed and size of moving object, mounting height, installation height and angle, installation site, reflectors around the sensor etc. The data in the document is typical value and tested by a 165cm person in an 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

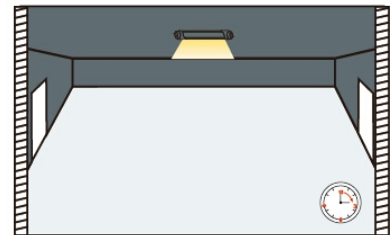
1)2-step dimming function (stand-by period is set to "+∞", daylight sensor is set to "Disable", other sensor parameters can be set actual needs)



- ① If there is no motion detected, the light will be remained at a low light level all the time.

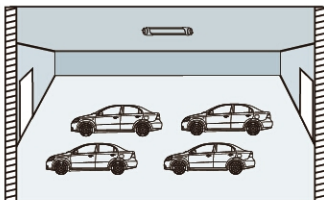


- ② When motion is detected, the sensor will switch on the light to 100% brightness

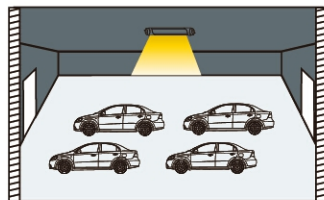


- ③ After elapse of hold time, the sensor dims the light at the present low light level if no motion is detected.

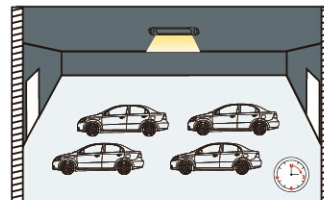
2)3-step dimming function (stand-by period is set to "5min/15min/30min", daylight sensor is set to "30lux/50lux/100lux", other sensor parameters can be set actual needs). If the daylight sensor is set to "Disable", turn ON the light when motion is detected regardless of the ambient light level.



- ① With sufficient ambient light, the light will not be switched on even if with motion signal.



- ② With insufficient ambient light, the sensor switches on the light when motion is detected.

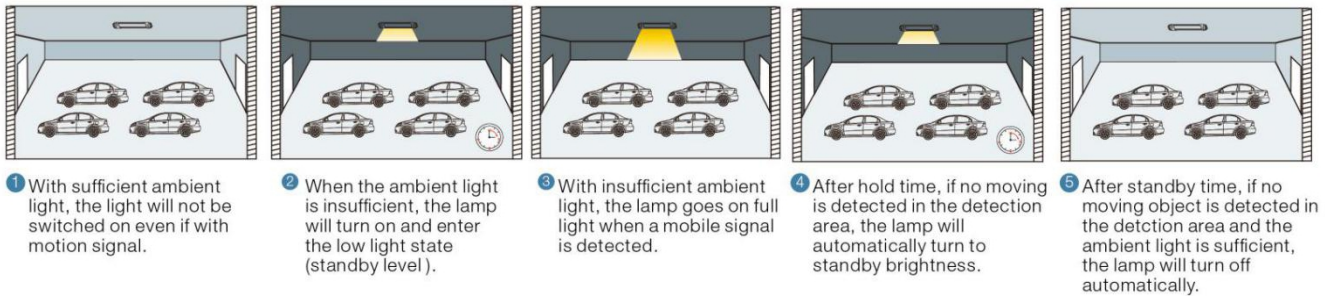


- ③ After elapse of hold time, the sensor dims the light at a low light level if no new motion is detected.

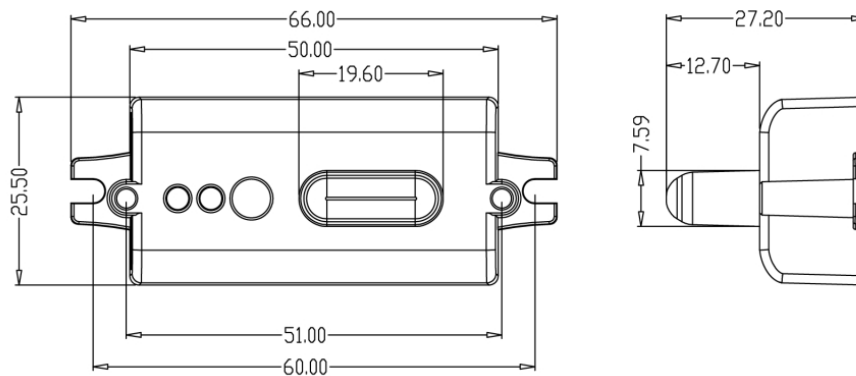


- ④ After elapse of standby period, the sensor switches off the light if no motion is detected in the detection zone.

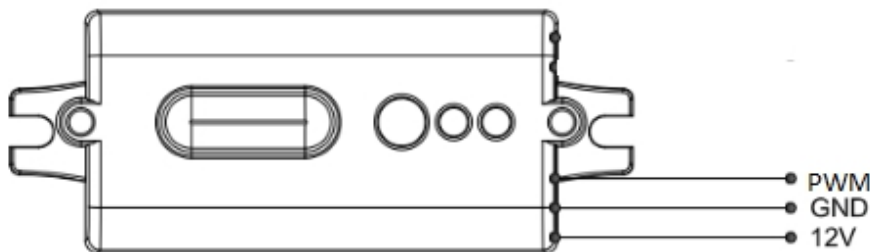
3) Daylight priority (stand-by period set to “+∞”, daylight sensor set to 30/50/100lux”, other sensor parameters can be set actual needs).



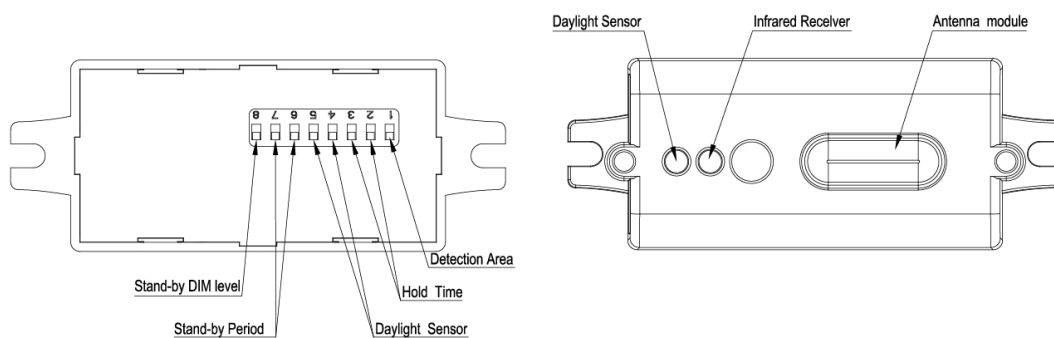
## 4. Dimension(mm)



## 5. Wiring



## 6. Structure and installation



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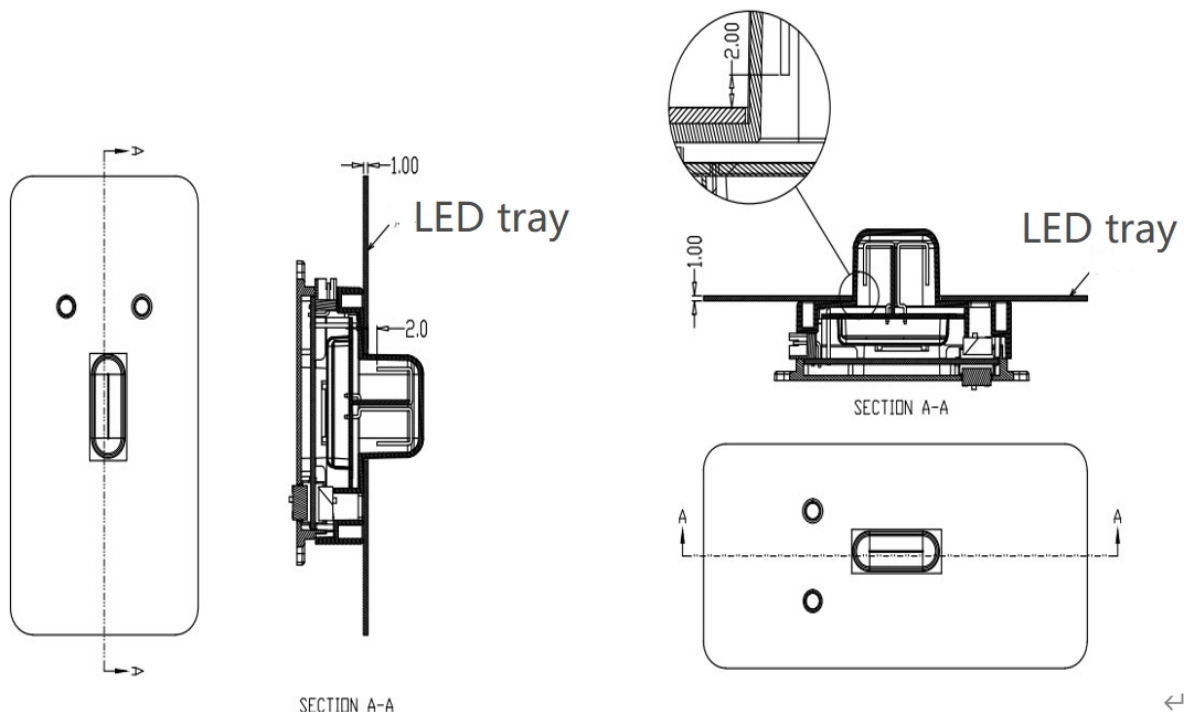
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## 7. Installation

Note: Sensor antenna should be above LED tray at least 2mm.



1. Cut a suitable opening size.



2. Put the product into the opening, and fasten it with screws.

## 8. Function Dialing Settings

1) Detection Area

	1	
I	ON	100%
II	-	50%

## 2) Hold Time

	2	3	
I	ON	ON	5S
II	ON	-	5min
III	-	ON	10min
IV	-	-	30min

## 3) Daylight Sensor

	4	5	Daylight Sensor	ON/OFF
I	ON	ON	30Lux	150Lux
II	ON	-	50Lux	150Lux
III	-	ON	100Lux	200Lux
IV	-	-	Disable	Disable*

## 4) Stand-by period

	6	7	
I	ON	ON	5min
II	ON	-	15min
III	-	ON	30min
IV	-	-	+∞

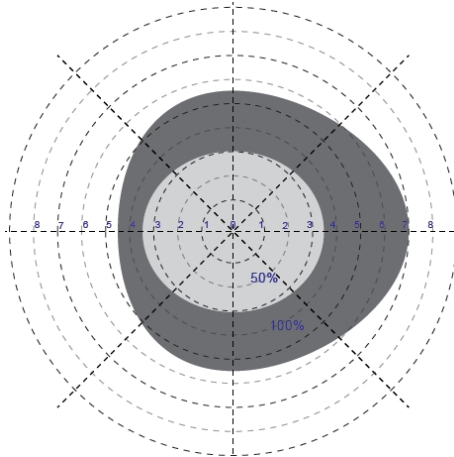
Note: (Be daylight priority when setting to “+∞”)

## 5) Stand-by Dim Level

	8	
I	ON	30%
II	-	10%

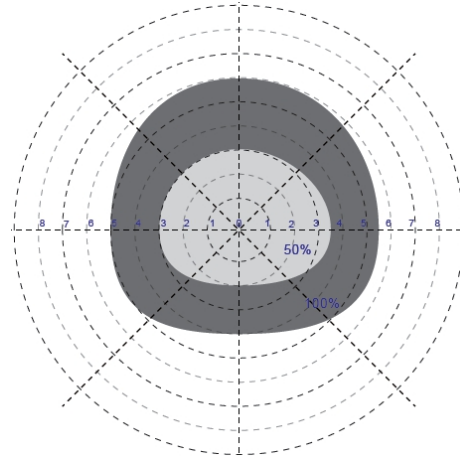
## 9. Radiation Pattern

Ceiling mounted height: 3m  
Sensitivity Area: 100%/50%



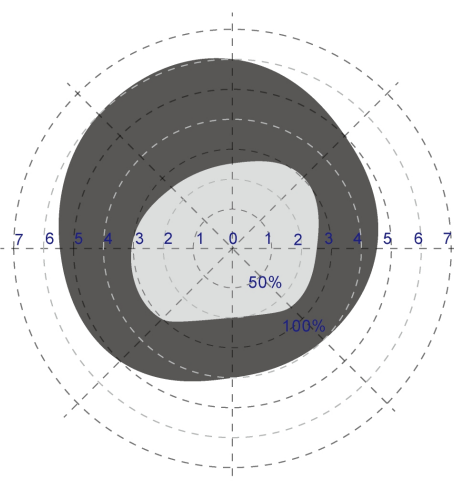
Normal moving (Speed: 1m/s)

Ceiling mounted height: 3m  
Sensitivity Area: 100%/50%



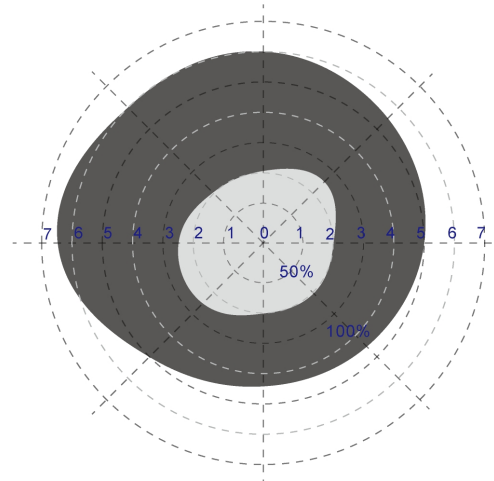
Slow moving (speed: 0.3m/s)

Ceiling mounted height: 6m  
Sensitivity Area: 100%/50%



Normal moving (Speed:1m/s)

Ceiling mounted height: 6m  
Sensitivity Area: 100%/50%



Slow moving (speed: 0.3m/s)

## 10. Initialization

After power on, the sensor automatically turns on light at 100% brightness. After 10sec, it turns low brightness. During the initialization, the sensor is not able to detect movement.

## 11. Factory Setting

Detection area: 100%, Hold Time: 30min, Stand-by Period:5min, Stand-by dim level: 10%, Daylight Sensor: Disable

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## 12. Application Notice

- (1) The sensor should be installed by a professional electrician. Please turn off the power before installing, wiring or changing parameters.
- (2) Microwaves cannot penetrate metal. Do not place the product in a closed metal lamp or a half-closed metal lamp and metal or glass are not allowed to cover above the product. If antenna needs to pass through the metal plate, please ensure that the top of the sensor is close to the metal plate.
- (3) The distance between any inductive sensors should be greater than 2 meters. Keep sensor away from switches, routers and other wireless devices to avoid radio interference, more than 1.5 meters. The antenna surface of the microwave module should not be directly facing input AC and output DC to avoid low or high frequency signals affect the normal operation of microwave sensor's antenna.
- (4) Vibration signals will be regarded as moving signals to trigger the sensor. Avoid using objects that vibrate for a long time around the sensor, such as large metal equipment, pipes, air conditioning outlets, exhaust vents, smoke exhaust machine ports, shaking fans, etc. Pets in detecting area may trigger sensing.
- (5) Sensor is for indoor use only. The waterproof effect for outdoor use will be affected. Wind, rain, and moving objects around will cause false triggering. When the sensor is installed in a metal lamp, metal reflective surface, or a narrow enclosed environment, the microwave will be reflected repeatedly and cause false triggering. Please reduce the sensitivity or contact the manufacturer for technical support.
- (6) This Sensor is suitable for ceiling mounting. If wall mounting, the microwave detection distance will be greatly increases, which may lead to the phenomenon that the microwave passes through the wall or does not turn off the lamp. Please adjust the sensitivity by 50%. If 50% cannot be used, please avoid wall installation or contact the manufacturer to provide technical support.
- (7) Due to continuous improvement, the contents of this instruction could be changed without prior notice.
- (8) Different PWM drivers, different low brightness. The daylight threshold is measured in a sunny environment without shadow and ambient light diffuse reflection. Ambient lux level could be different in different environment, weather, climate, time-of-day and season.
- (9) Sensitivity distance is related to moving speed of objects, size of moving objects, mounting height, mounting angle, working environment, reflecting materials etc.
- (10) Given detecting area is typical value that was measured by 165cm high testers in an indoor open environment.



- (11) This product have to use with voltage-stabilized DC power supply whose input voltage is stable and ripple factor is low(ripple factor is lower than 100mV; load current is greater than 30mA).
- (12) When installing in new environment, please install and test at least 5pcs product firstly before mass installation.