

# Specification

**Product Name:** 24GHz Large-space presence sensor (Tuya Zigbee version)

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**Product Model:** MSA219 Z1

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**Product Version:** V1.0

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Versions	Release/ change Date	Publishing
V1.0	2023.10.10	Jacky

## 【Product Description】

MSA219 Z1 is a 24GHz radar sensor based on Merrytek patented orthogonal half-wave bending antenna. Its antenna is flipable from -30° to 30° and has high gain and wide detection range and is combined with Merrytek's unique software algorithm. It can accurately detect minor movements brought by human in almost all indoor spaces and provide fast and accurate human presence/absence information for smart home, smart hotel, smart office and other scenes.

## 【Product Feature】

- Lifebeing detection created by Merrytek
- Accurately output human-existing/ no-human signals
- Accurately output ambient illuminance
- Support TUYA ZIGBEE communication
- International standard: 24Ghz ISM Band Millimeter Wave Radar
- Presence detection diameter: 5-7m Max
- Minor Moving detection diameter: 6-8m Max
- Moving detection diameter: 6-8m Max
- Presence, minor moving and moving detection range are highly coincide
- Round radiation. Effectively managing a whole space by a single product
- Switching time of no-human state to human-existing state: less than 0.5s
- Switching time of human-existing state to no-human state: more than 30s
- Support surfaced mounting and embedded mounting
- Set parameters by TUYA APP
- Sensing function based on millimeter wave radar technology
- Low RF power output. No harm to human health
- Not affected by temperature, humidity, noise, airflow, dust, light and other environments



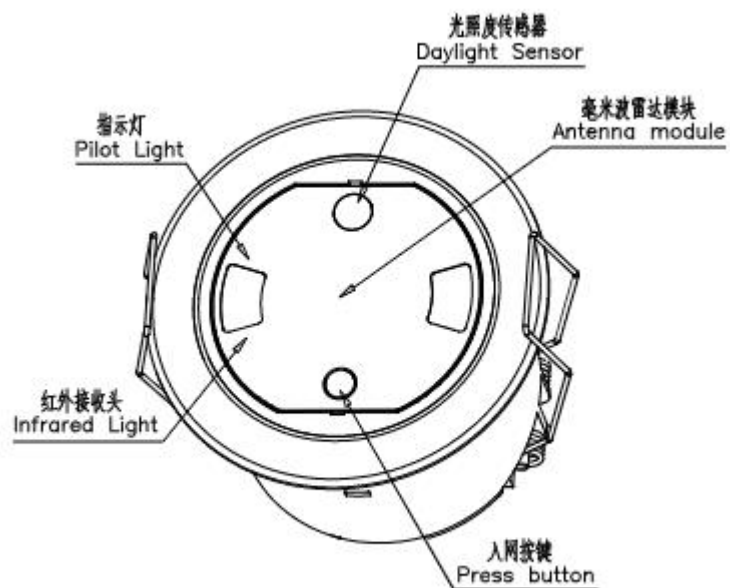
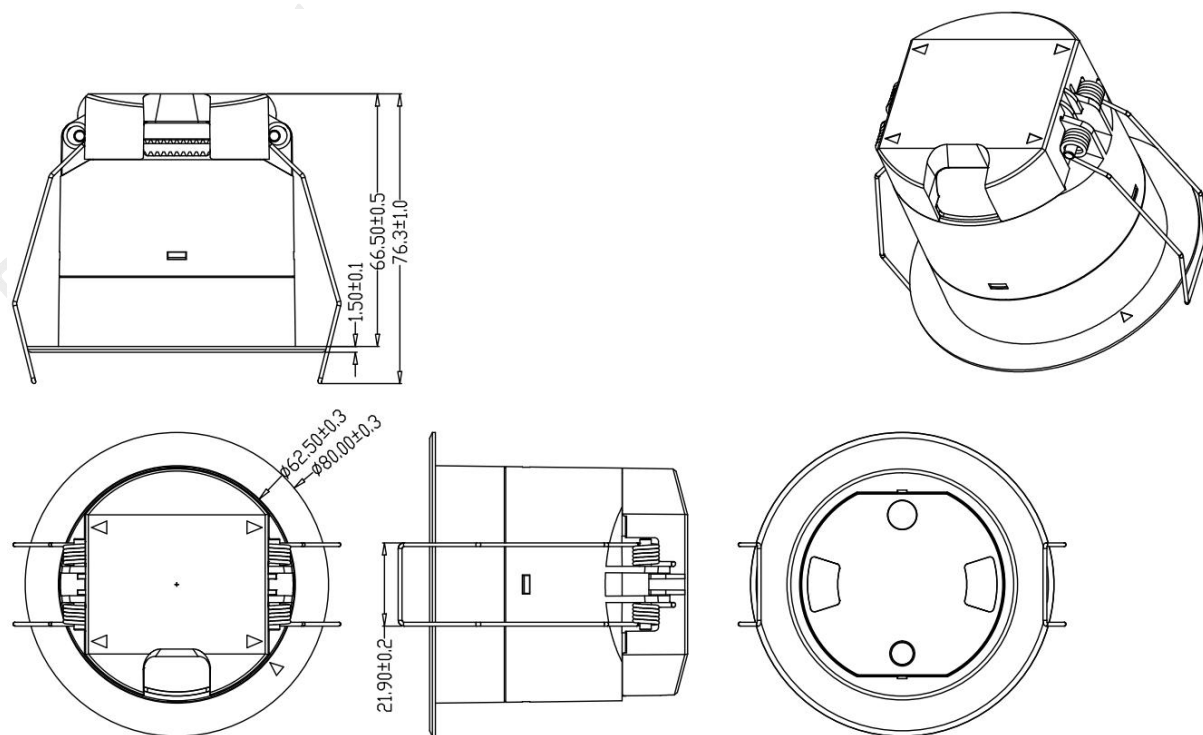
## 【Product dimension】

- Dimension:  $\phi 80 \times 66.5 \text{mm}$
- Terminal: 2pin terminal

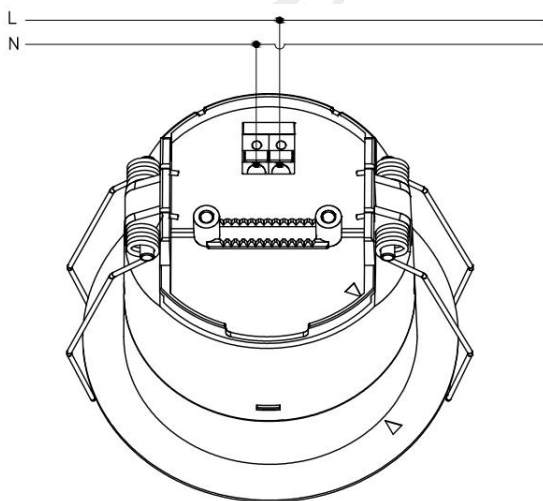
## 【Parameter】

<b>Input/Output</b>	Input voltage	100-240Vac 50Hz/60Hz
	Rated voltage	220V AC
	Working Current	12mA max
	Working Power	≤1W 220V AC
<b>Wireless module</b>	Communication module frequency	2.4GHz-2.484GHz ZIGBEE Transmitting Frequency: 10dB Receiving Sensitivity: -101±2dBm
<b>Sensor Parameter</b>	Radar frequency	24GHz-24.25GHz ISM band
	Transmitting Power	5mW Max.
	Detection Area	APP setting :1 level-12 level
	Hold Time	APP setting: 30s /1min / 2min/3min /5min /10min /20min/30min
	Daylight measure range	0-1200Lux
	Radius detection range(based on QS1 mode 100% sensitivity)	Motion/Presence (3m height) : 2.5-4m
	Mounting Height	Available
	Remote control	2.5-4.0m
	3db Beam Angle	100° (horizontal) 100° (vertical)
<b>Application Environment</b>	Drill hole	Φ70mm
	Working Temperature	0℃...+50℃
	Storage Temperature	-25℃~+80℃
<b>Certificate Standard</b>	Certificate	FCC/RED
	Environmental Requirement	Compliant to RoHS
	IP Rating	IP20
Note: "N/A" means not available.		

## 【Dimension and Function diagram】



### 【Wiring instruction】



### Wiring layout suggestion:

Our sensor is recommended layout in UPS circle to guarantee instant smart scene execution or electrical appliance operation

### 【Initialization】

When powered on, sensor indicator will turn off after flashing for 20S and will not detect moving signal during this time. After 20S, you can use tuya APP to adjust detection area, hold time and daylight sensor etc parameter.

### 【Factory setting】

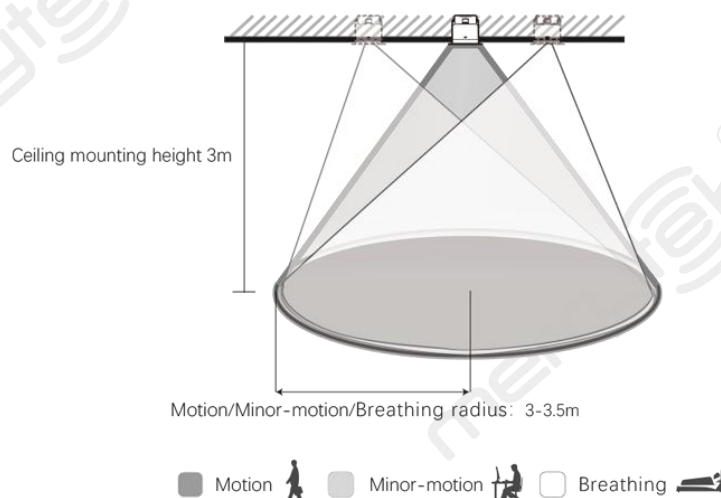
Detection Area :12 level

Hold Time : 1min

Indicator light: open

## 【Detection radiation】

MSA219 Z1 is highly recommended ceiling flush mounting and its detection radiation is as below shows:



## 【Detection Signal】

The product detects human moving, minor moving, and presence signals, and realizes the detection of human-existing/no-human in non-sleep state. The following is a description of the moving, minor moving and presence signals:

- **Moving signal:** detect the human significant moving (walking) in the detection area.
- **Minor moving signal:** detect the human slight moving in the detection area, such as leaning forward, leaning forwarder and back, swinging limbs, shaking head, typing, playing with mobile phones and so on.
- **Presence signal:** detect human abdominal and thoracic expansion behaviors caused by breathing, but not detect moving signal and minor moving signal.

## 【Disclaimer】

Due to the complexity of product technology and differences in application environment, it is difficult to guarantee a completely accurate or complete description, so this specification is only for user reference.

We will reserve the right to make changes to the product specifications without notifying the user, and do not make any commitments and guarantees in the legal sense.

At the same time, our company encourages users to supplement or modify the contents of our specifications after using our products.