Specification

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

Product　Model:　MSA201 Z

Product　Version:　V1.0

Versions	Release/ change Date	Publishing
V1.0	2024.04.07	Jacky

【Product Description】

MSA201 Z is a 24GHz radar sensor based on Merrytek patented orthogonal antenna. Its antenna has high gain and wide detection range. Combined with Merrytek's unique software algorithm and FMCW modulation,it can accurately detect micro movements brought by human in almost all indoor spaces and provide fast and accurate front-end sensing input for smart home, smart hotel, smart office and other scenes.

【Product Feature】

- Exclusive Merrytek Lifebeing Presence Detection
- FMCW modulation technology applied to detect micro movement brought by breathing
- Germany RF technology applied for 5-year gurantee assurance
- Accurate Presence/Absence Output
- Daylight Sensor Available
- Support TUYA ZIGBEE communication
- 24Ghz ISM Band Millimeter Wave Radar technology
- Major/Minor/Micro Motion detection diameter: 6-8m Max
- Major/Minor/Micro Motion detection range are highly coincide
- Round radiation. Effectively managing a whole space by a single sensor
- Absence switch to Presence within 0.5S
- Presence switch to Absence no less than 15S
- Flush mounting and Surface mounting installation available
- Sensor parameter adjustable by Tuya APP or MH10 remote
- 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
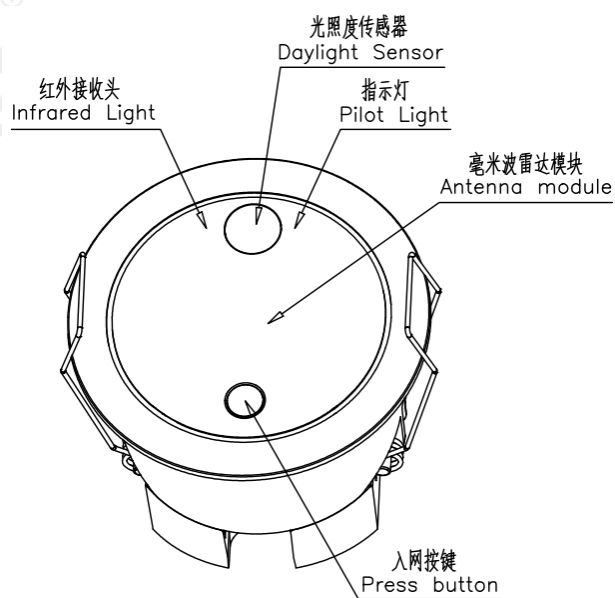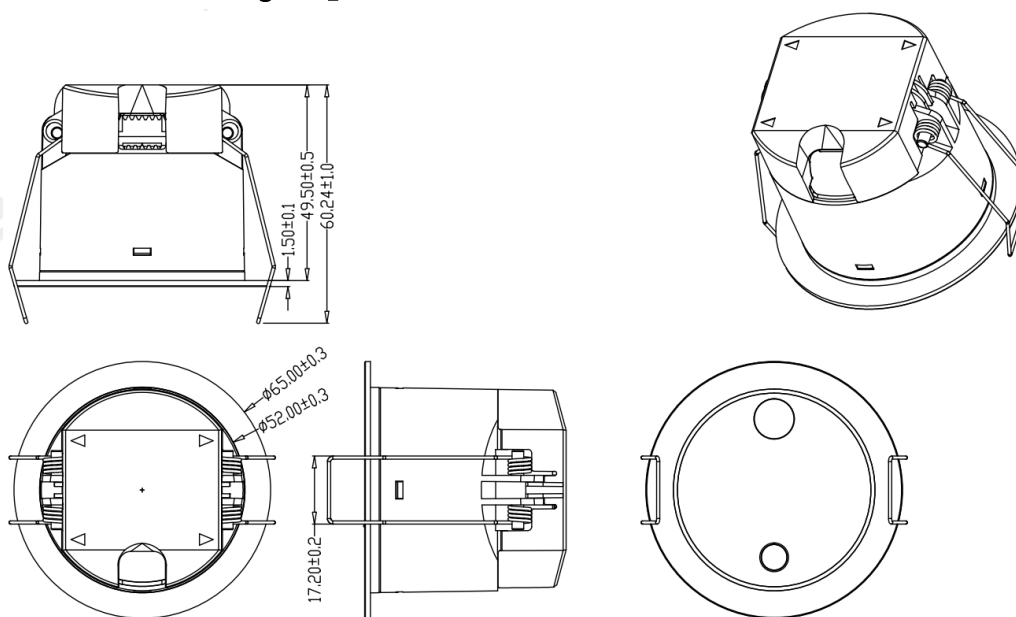
【Product dimension】
- Dimension: φ65x49.5mm
- Connection: 2-pin terminal

【Parameter】

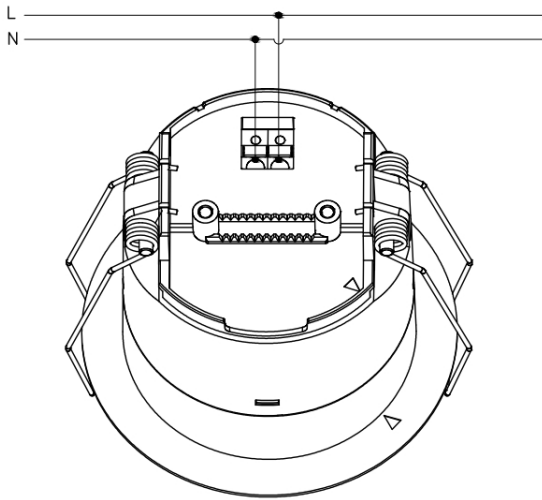|		
Input/Output	Input voltage	220-240Vac 50Hz/60Hz
	Rated voltage	220V AC
	Working Current	50mA max
	Working Power	≤1W 230V AC
Wireless communication module	Zigbee frequency	2.4GHz-2.484GHz ZIGBEE Transmitting Frequency: 10dB Receiving Sensitivity: -101±2dBm
Sensor Parameter	Radar frequency	24GHz-24.25GHz ISM band
	Transmitting Power	5mW Max.
	Detection Area	APP setting: 0-4m（0.5m per tapping）
	Hold Time	APP setting: 3-7200s
	Daylight sensor range	0-1200Lux
	QS1+100% detection range radius	major/minor/micro movement（3m height installation）: 3.5±0.5m（based on 41㎡ open area test and might change due to different space）
	Remote control	Available
	Mounting height	2.5-4.0m typical value:3m
	Detecting Angle	120°
Application Environment	Drill hole	Φ55mm
	Working Temperature	0℃…+50℃
	Storage Temperature	-25℃~+80℃ Humidity:≤85% (non-condensation)
Certificate Standard	Certificate	FCC/RED
	Environmental Requirement	Compliant to RoHS
	IP Rating	IP20
	Gurantee	5 year（only for product quality problem）
Note: "N/A" means not available.		

【Dimension and Function diagram】

Φ65.00±0.3
Φ52.00±0.3

1.50±0.1
49.50±0.5
60.24±1.0
17.20±0.2

红外接收头
Infrared Light

光照度传感器
Daylight Sensor

指示灯
Pilot Light

毫米波雷达模块
Antenna module

入网按键
Press button

【Wiring instruction】

Wiring layout suggestion：

1. 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 10S and will enter a 20S detection cycle,if there's presence detected,then sensor will report presence and enter hold time calculating,if absence detected,then sensor will report absence.During initialization,sensor will not detect moving signal and you can use our MH10 remote to adjust detection area、hold time and daylight sensor etc parameter.

【Factory setting】

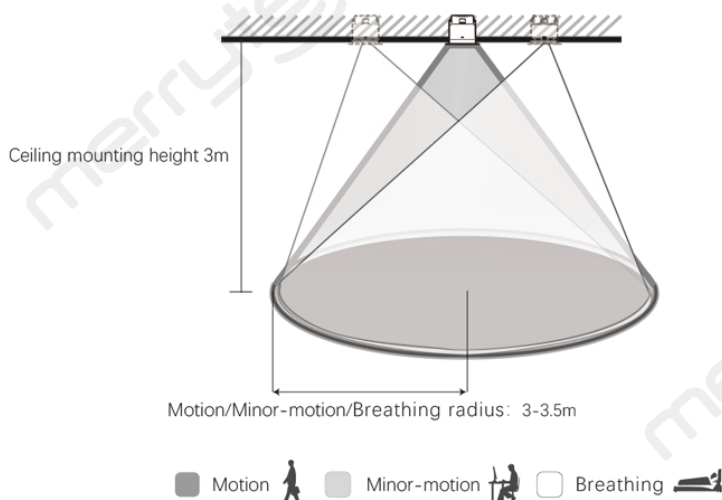Detection Area: 4m   Hold Time: 30s

Indicator light: Open   Sensitivity: Major sensitivity

【Detection radiation】

MSA201 Z is highly recommended ceiling flush mounting and its detection radiation is as below shows:

Ceiling mounting height 3m

Motion/Minor-motion/Breathing radius: 3-3.5m

■ Motion 🚶 ■ Minor-motion 🧑‍💼 □ Breathing 🛏️

【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:

- **Major movement:** detect the human significant moving (walking) in the detection area.
- **Minor movement:** 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.
- **Micro movement:** detect human abdominal and thoracic expansion behaviors caused by breathing, but not detect moving signal and minor moving signal.

Major movement   Minor movement   Micro movement

【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.