

Specification

Product Name: 24GHz Large-space presence sensor (2.4G RF version)

Product Model: MSA219 RF A

Product Version: V1.0

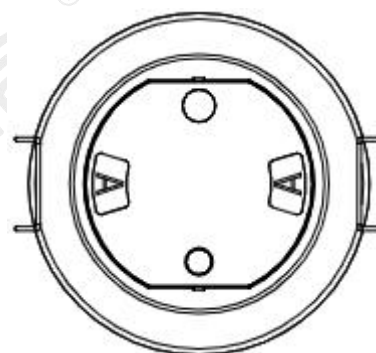
Versions	Release/ change Date	Publishing
V1.0	2024.02.02	Jacky

【Product Description】

MSA219 RF A 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. Furthermore, it also has 1 channel local relay switch control function and 2.4G RF wireless control function.

【Product Feature】

- Exclusive Merrytek Lifebeing Presence Detection
- Accurate Presence/Absence Output
- Daylight Sensor Available
- Wireless 2.4G RF group control available
- One channel relay switch output available
- Detection antenna flipable from -30° to 30°
- 24Ghz ISM Band Millimeter Wave Radar technology
- Presence detection diameter: 5-7m Max
- Minor Motion detection diameter: 6-8m Max
- Motion detection diameter: 6-8m Max
- Presence, minor motion and 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 30S
- Flush mounting installation available
- Sensor parameter adjustable and group assignment by 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



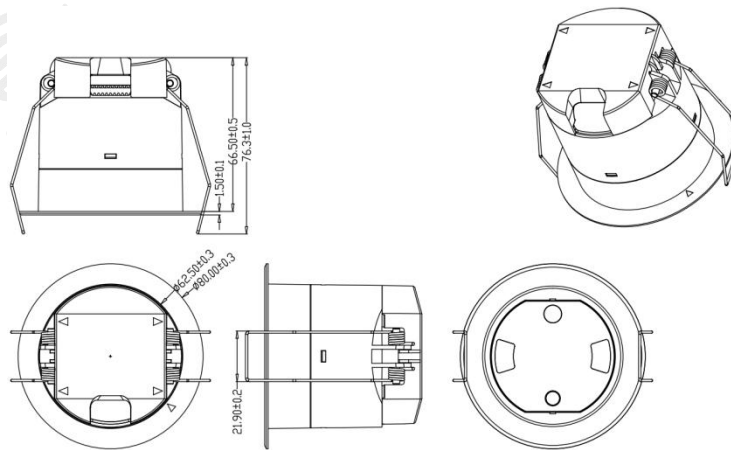
【Product dimension】

- Dimension: $\phi 80 \times 66.5 \text{mm}$
- Terminal: 4pin terminal

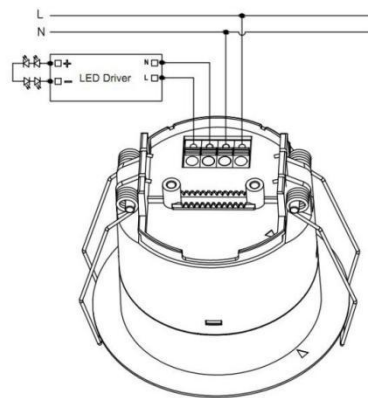
【Parameter】

Input/Output	Input voltage	100-240Vac 50Hz/60Hz
	Rated voltage	220V AC
	Working Current	12mA max
	Consumption	≤1W 220V AC
Wireless module	RF frequency	2.4GHz RF
Sensor Parameter	Radar Frequency	24GHz-24.25GHz ISM band
	Radar transmit power	5mW Max.
	Detection Sensitivity	MH15 remote setting: 25%/50%/100%
	Hold Time	MH15 remote setting: 5s /30s /1min /3min /5min /10min /20min/30min
	Daylight threshold	MH15 remote setting: 5Lux /15Lux /30Lux/ 50Lux /100Lux /150Lux/Disable
	Radius detection range(based on 100% sensitivity and 3m mounting)	Motion detection (3m height) : 3-4m Minor motion detection (3m height) : 2.5-3.5m Presence (3m height) : 2.5-3.5m
	Remote control	Available
	Mounting height	2.5-4.0m
	3dB beam angle	100° (horizontal) 100° (vertical)
Application Environment	Drill hole	Φ70mm
	Working Temperature	0℃...+50℃
	Storage Temperature	-25℃~+80℃
Certificate Standard	Certificate	FCC/RED
	Environmental Requirement	Compliant to RoHS
	IP Rating	IP20
Note: "N/A" means not available.		

【Dimension and Function diagram】



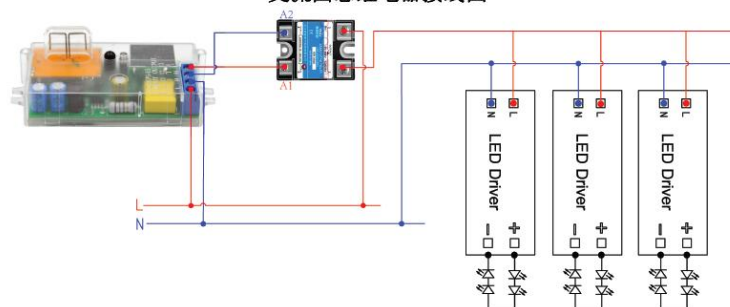
【Wiring instruction】



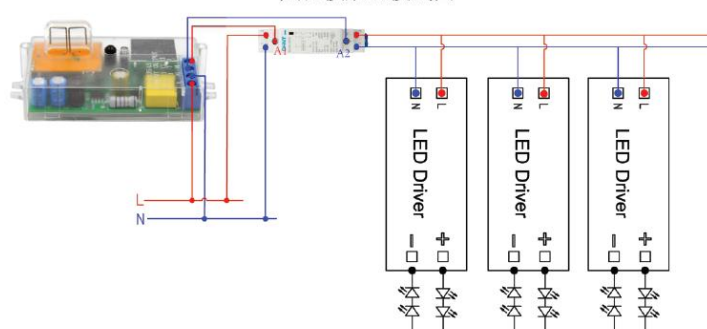
Wiring layout suggestion:

1. Our sensor is recommended layout in UPS circle to guarantee instant smart scene execution or electrical appliance operation
2. LN terminal stands for AC input, L'N' stands for AC output, please wiring correctly
3. One sensor's max loading capacity is 800w resistive loading and 400w inductive loading for one single load. if you want connect more load in one loop, we recommend to add an AC contactor in our output LN terminal to avoid momentary surge overload.

交流固态继电器接线图



交流接触器接线图



注：负载能力由交流固态继电器/交流接触器性能决定。

【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 our MH15 remote to adjust detection area、hold time and daylight sensor etc parameter.

【Factory setting】

Detection Area:100%

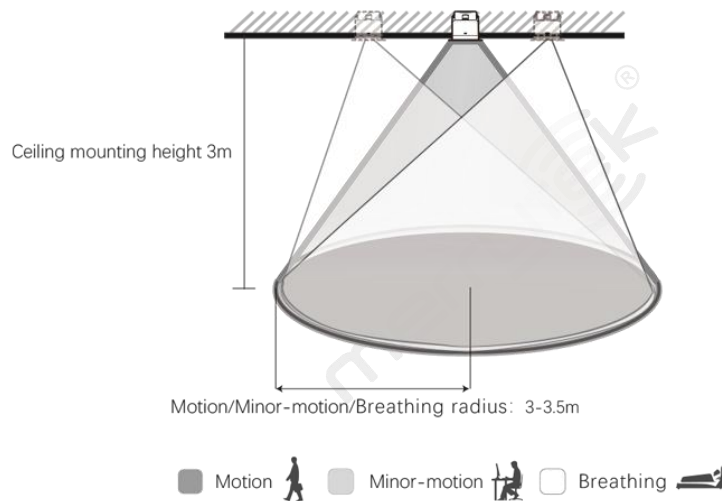
Hold Time:1min

Indicator light: open

Daylight threshold:Disable

【Detection radiation】

MSA219 RF A 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.

【Function description】

1、MSA219 RF A can control electrical load like lighting independently or do master-slave group control,below is its detailed function instruction:

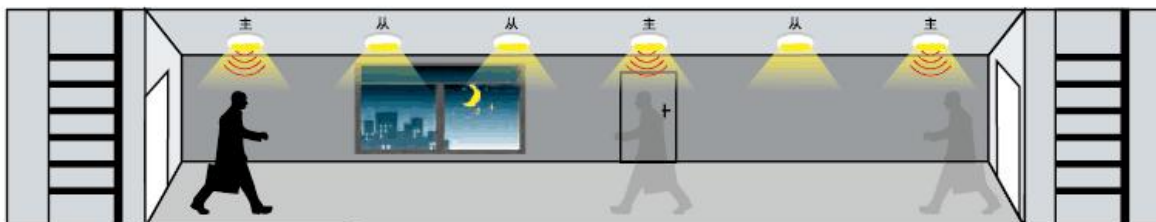
If the wireless network is all consist of MSA219 RF A and they're assigne in same channel work as broadcast mode,then any triggered sensor will trigger other sensors

master	channel	slave	channel
1	1-8	1	1-8
2	1-8	2	1-8
...		...	

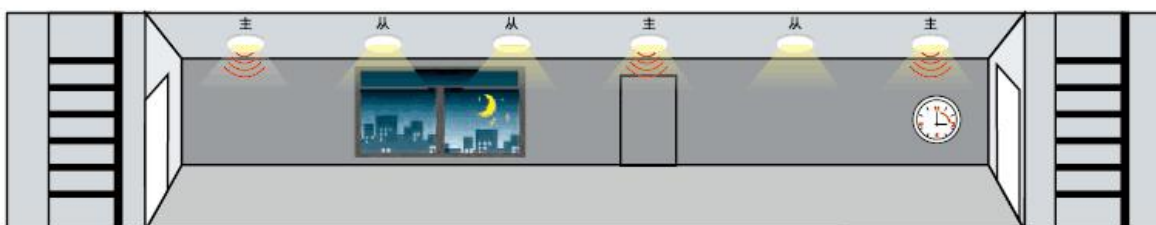
Any	1-8	Any	1-8
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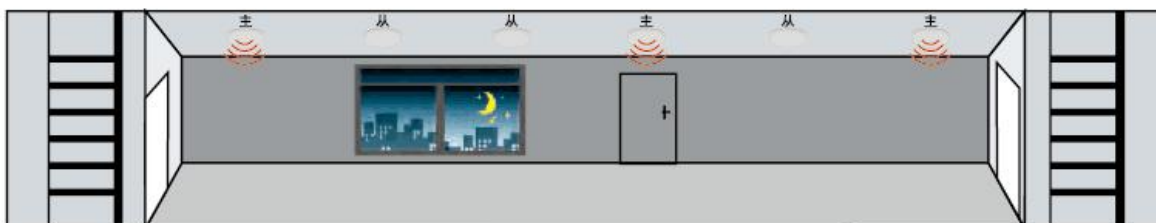
- ① If no motion is detected, all lamps will be switched off.



- ② If any movement is detected from any direction, all lamps will be synchronously switched on.

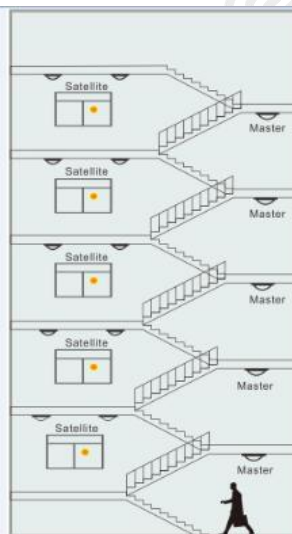


- ③ If no motion is detected in the detection zone, all lamps will be synchronously dimmed to a low light level after hold time.

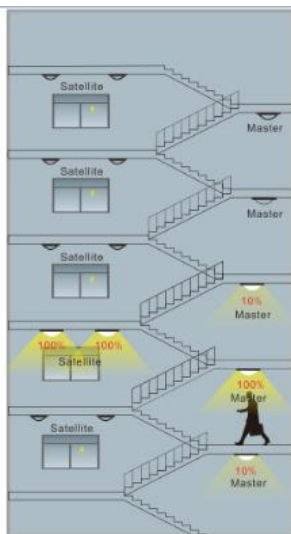


- ④ After stand-by period, the lamps will be switched off if no movement is detected in the detection zone.

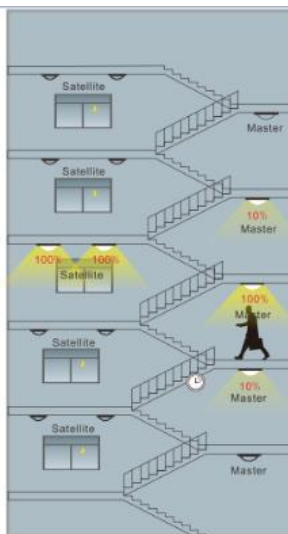
2, If some MSA219 RF A is set as master and some MSA219 RF A or MSA058 RF is set as slave in a same channel, then only master MSA219 RF A can work as TX, slave can only work as RX



① With sufficient ambient light, all lamps switch off even if there is motion.



② With insufficient ambient light and the person walks to the 2nd floor, all the 2nd lamp switch on at 100%, and the 1st and 3rd floor lamps switch on at a preset light.



③ The person walks to the 3rd floor, all the 3rd floor lamps light up to 100%, and the 4th lamp switch on at a preset light, the 2nd floor lamp dim to low light level after hold time.

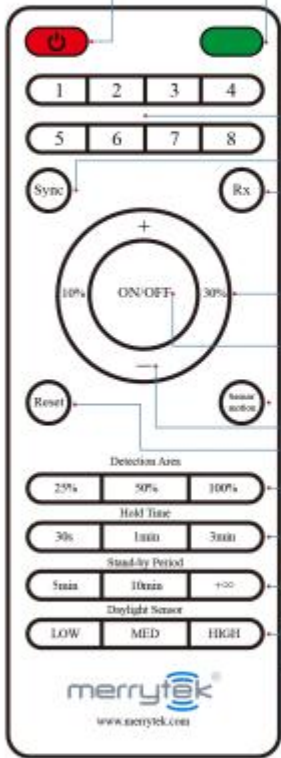









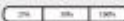
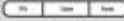


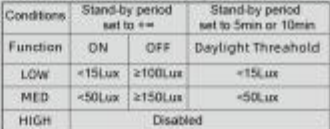


④ The person walks to the 4th floor, all the 4th floor lamp light up at 100%, and the 5th floor lamp switch on at a low light level, the 3rd floor lamp dims to a low light level after hold time, the 2nd floor lamp switches off after a standby period.

【Remote manual】



Instruction

Remote Control Setting	Button	Remarks
		Turn off wireless transmission
		Recover wireless transmission
		Long press the same channel No. to several lights for grouping. Lights flash 1 time means set successfully. Can build maximum 8 different groups. Short press the channel No., the lights in the same group will flash 3 time.
		Short press the channel No., the lights in the same group will flash 3 time. And then short press the sync button to synchronize sensor parameters to all lights in the same group, including detection area, hold time, stand-by period, daylight sensor and stand-by dim level. After the synchronization is successful, the lights in the same group will flash 3 time.
		Receiving mode setting. Short Press 'Rx' and grouping button 1 to 8 within 3 sec, the sensor can receive several different signal from other groups, max. 4 groups. For example, suppose sensor A is set in group 1, if press 'Rx' and '2', it can receive the trigger from both group 1 and 2. Only press 'reset' can to cancel this mode.
		Short press this button to set the stand-by dim level, 10% or 30%.
		Short press 'ON/OFF' button to disable the sensor function, the light will works as normal LED light. The 'ON/OFF' button is with memory function after power recovery. Press 'sensor motion' button to recover the sensor function and device memories the last sensor programming.
		+/- to set the light at its full brightness and decrease by 2% each time pressing
		Long pressing for 3s to recover factory setting and clear groups. Detection Sensitivity: 100%, Hold time: 10s, Daylight sensor: disable, Stand-by period: 0s, stand-by dim level: 10%.
		Short press to select detection area, 25% is the shortest range. 100% is the maximum.
		Hold Time: 30s, 1min, 3min
		Stand-by Period: 5min, 10min, +∞
		Daylight sensor: 1. Stand-by period set to 5min or 10min. Enable daylight threshold mode. Light will turn on when ambient light level below the threshold value if with motion trigger. 2. Stand-by period set to +∞, daylight priority is enabled. Light will automatically turn ON/OFF according to ambient light level against setting below. 3. Press 'HIGH' button, Daylight sensor is disabled.
		

【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.