

Specification

Product Name: 24GHz Large-space presence sensor (ON/OFF version)

Product Model: MSA202S RC

Product Version: V1.2

Versions	Release/ change Date	Publishing
V1.0	2022.09.05	Jacky
V1.1	2022.11.11	Jacky
V1.2	2023.05.20	Jacky

【Product Description】

MSA202S RC is a 24GHz radar sensor based on Merrytek patented orthogonal half-wave bending antenna. Its antenna 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 front-end sensing input for smart home, smart hotel, smart office and other scenes.

【Product Feature】

- Exclusive Merrytek Lifebeing Presence Detection
- Accurate Presence/Absence Output
- Daylight Sensor Available
- ON/OFF switch function available
- 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 and Surface mounting installation available
- Sensor parameter adjustable by MH10 remote or DIP switch
- 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】

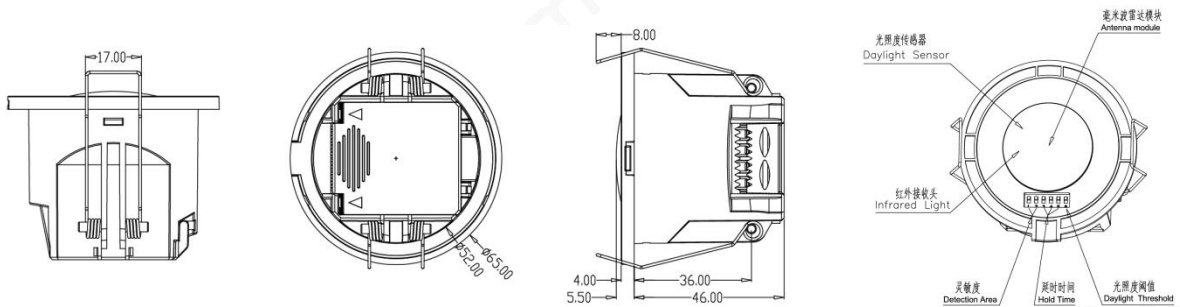
- Dimension: $\phi 65 \times 46 \text{mm}$
- Terminal: 4pin terminal

【Parameter】

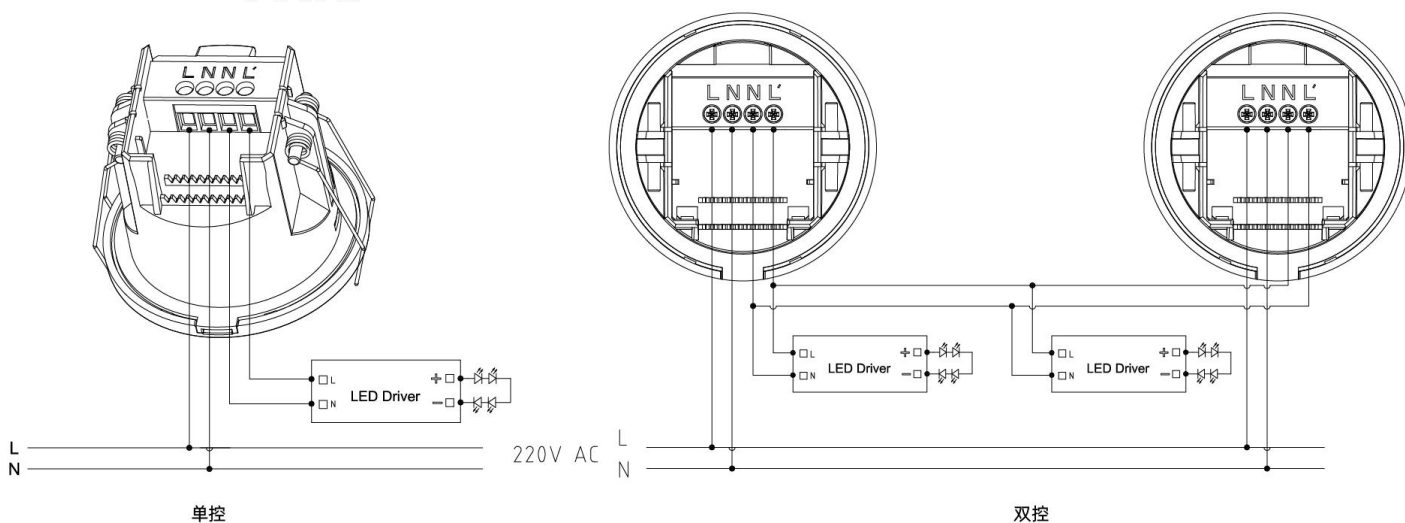
Input/Output	Input voltage	100-240V AC 50/60Hz
	Rated voltage	220V AC
	Load capacity	800w resistive loading or 400w inductive loading
	Working Power	≤1W
	Loading instant peak current	50A
Sensor Parameter	Radar frequency	24GHz -24.25GHz, ISM band
	Radar transmit power	5mW Max. 3dBm Max.
	Detection Area	DIP or remote setting: 100%/75%/50%/25%
	Hold Time	DIP or remote setting: 5s/30s /1min / 3min /5min /10min /20min /30min
	Radius detection range(based on QS1 mode 100% sensitivity)	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
	Detecting Angle	150°
Application Environment	Drill hole	Φ55mm
	Working Temperature	0℃ to +50℃
	Storage Temperature	-40℃ to 80℃
Certificate Standard	Certificate	FCC/RED
	Environmental Requirement	Compliant to RoHS
	IP Rating	IP20

Note: "N/A" means not available.

【Dimension and Function diagram】



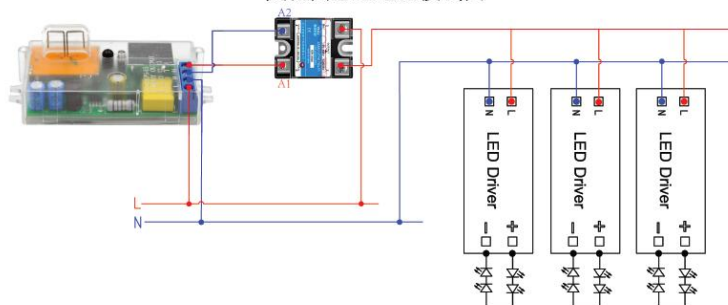
【Wiring instruction】



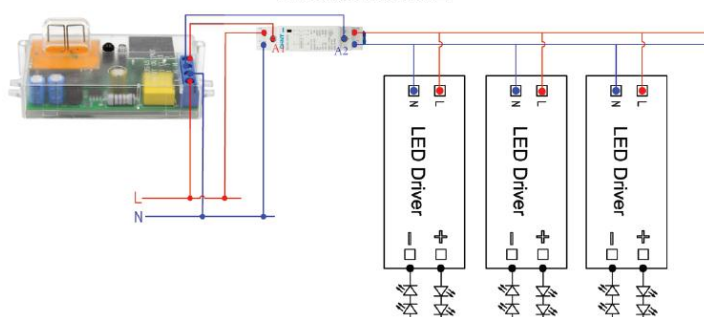
Wiring layout suggestion:

1. LN terminal stands for AC input, L'N' stands for AC output, please wiring correctly
2. 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 MH10 remote or dip switch to adjust detection area、hold time and daylight sensor etc parameter.

【Factory setting】

Detection Area: QS1 mode 100%

Hold Time: 1min

Daylight Sensor: Disable

Indicator light: Open

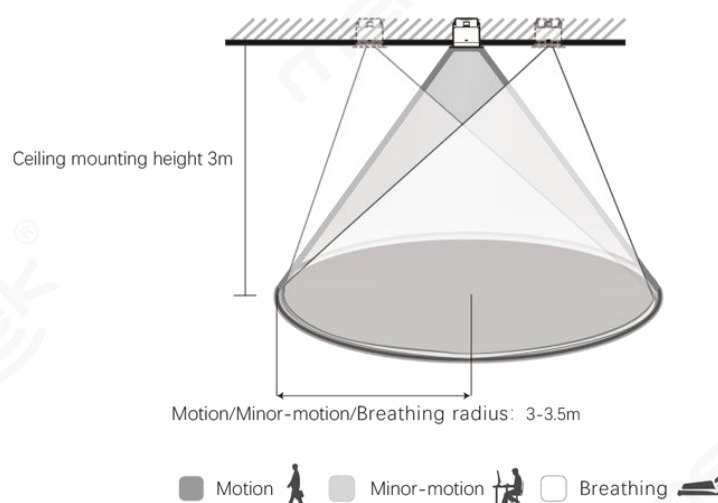
【Detection Signal】

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.

【Detection radiation】

MSA202S RC is highly recommended ceiling flush mounting and its detection radiation is as below shows:



【DIP setting】

- Detection Area

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

- Hold Time

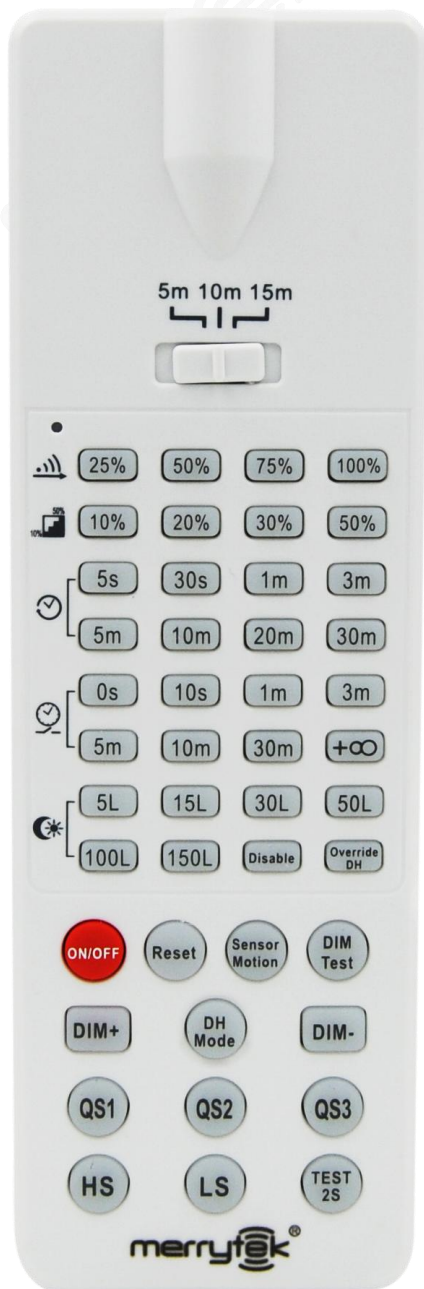
	3	4	5	
I	ON	ON	ON	5S
II	-	ON	ON	30S
III	ON	-	ON	1min
IV	ON	ON	-	3min
V	-	-	-	5min

- Daylight Sensor

	6	
I	ON	50Lux
II	-	Disable

*Once daylight sensor set as Disable,our motion sensor will detect human movement regardless of environment lux

【Remote manual】



Detection range: 25%/50%/75%/100%

Hold time: 5s/30s/1min/3min/5min/10min/20min/30min

Daylight threshold: 5lux/15lux/30lux/50lux/100lux/150lux/Disable

ON/OFF: disable sense function

Sensor motion: enable sense function

Reset: all parameter back as factory setting

QS1/QS2/QS3: High/Medium/Low sensitivity setting

HS: turn on indicator

LS: turn off indicator

【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.