Specification

Product Name: 24GHz Large-space presence sensor （Dry contact version）

Product Model: MSA200D RC

Product Version: V1.0

Versions	Release/ change Date	Publishing
V1.0	2024.06.12	Jacky

【Product Description】

MSA200D RC 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
- NO/NC dry contact output available
- 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 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
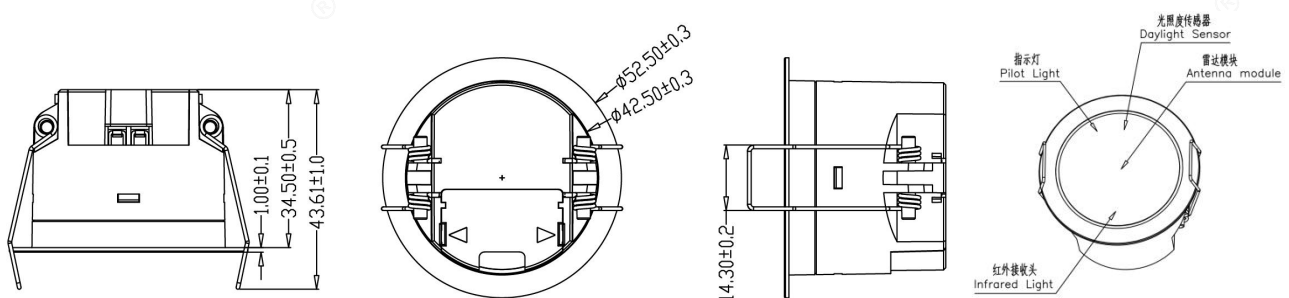
【Product dimension】

- Dimension: φ52.5x34mm
- Terminal: 4pin terminal

【Parameter】
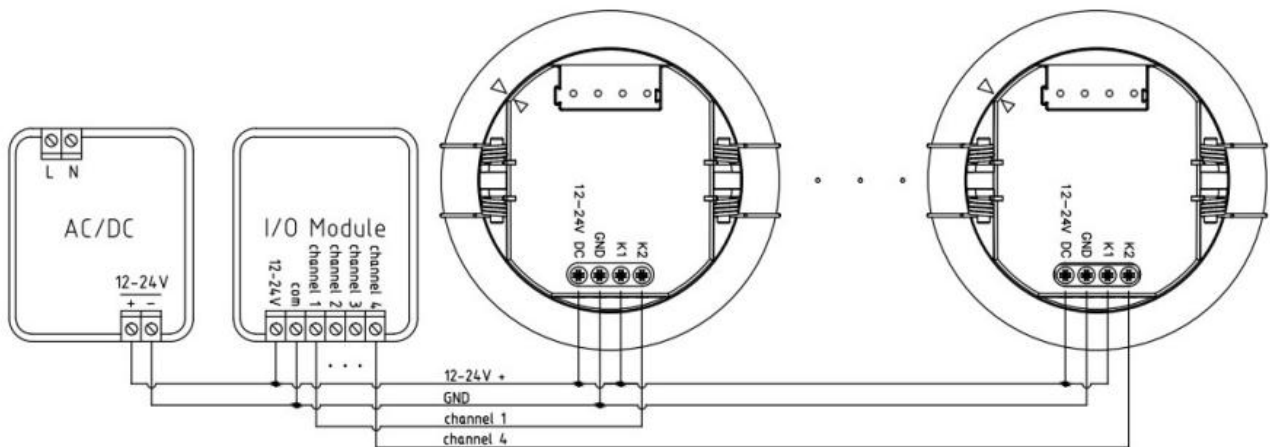
Input/Output	Input voltage	12-24V DC
	Rated voltage	12/24V DC
	Working Current	@12Vdc：50mA max @24Vdc：30mA max
	Working Power	≤1W @24V DC
	Output signal	NO/NC dry contact (Factory setting is NO dry contact)
	Load type	Resistive (load voltage :Vdc≤36V,load current:100mA max)
Sensor Parameter	Radar frequency	24GHz -24.25GHz，ISM band
	Transmitting Power	5mW Max.
	Detection Area	0-4m (by MH10 remote)
	Hold Time	10s /30s /1min / 3min /5min /10min /20min/30min(by MH10 remote) Remark: For better presence detection,hold time shall set >15S
	Daylight Sensor threshold	5Lux/15Lux/30Lux/50Lux/100Lux/150Lux/Disable (by MH10 remote)
	QS1+100% detection range radius	major/minor/micor 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	Φ45mm
	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】

【Wiring instruction】

Wiring layout suggestion：

1. Hand-in-hand wiring is highly recommended,yet star-topology or tree-topology is strongly deprecated

2. When there's more than 1pc sensor is a line,you shall consider all equipment current consumption shall not surpass your driver's loading capacity.
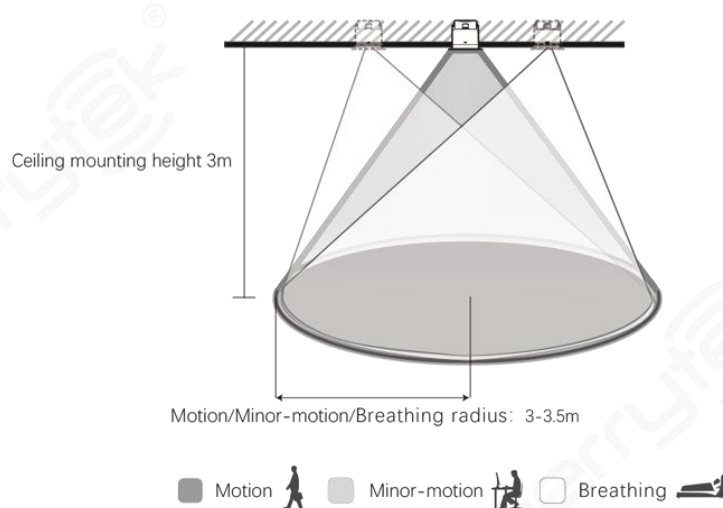
【Initialization】

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 enter hold time calculating,if absence detected,then sensor relay will disconnect.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

Daylight Sensor: Disable   Indicator light: open

【Detection radiation】

MSA200D RC 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.
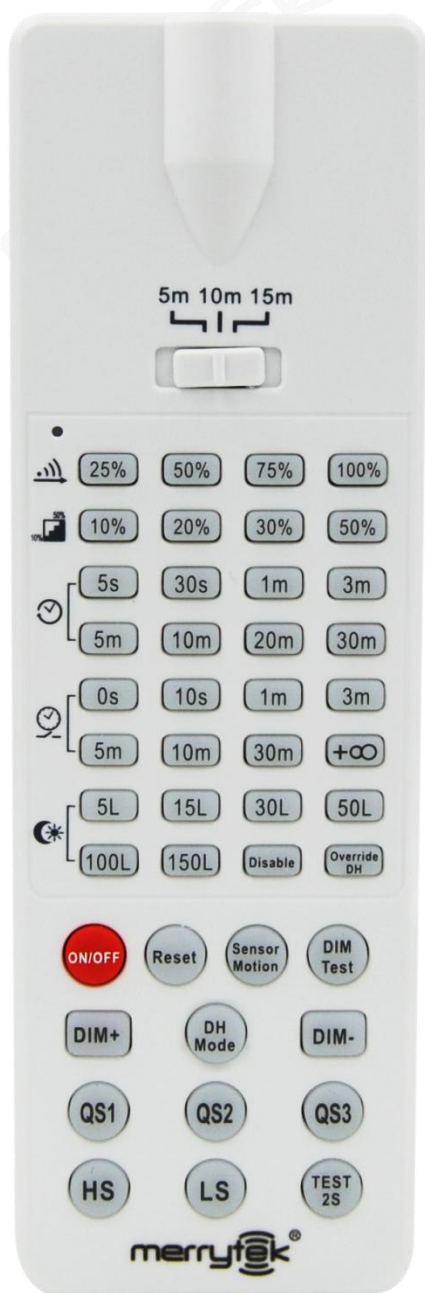

Major movement   Minor movement   Micro movement

【Remote manual】

Detection range:
QS1+100%=4m,QS1+75%=3.5m,QS1+50%=3m,QS1+25%=2.5m,
QS2+100%=2m,QS2+75%=1.5m,QS2+50%=1m,QS2+25%=0.5m

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

0S: high sensitivity   10s:medium sensitivity   1m:low sensitivity
10m: micro self-learning mode   30m: minor self-leaning mode
+∞：major self-learning mode

Daylight threshold: 5lux/15lux/30lux/50lux/100lux/150lux/Disable
Override DH:long press 3S,minor and micro motion detection disabled,Major motion detection reserved

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
TEST 2S: Disable all motion detection

【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.