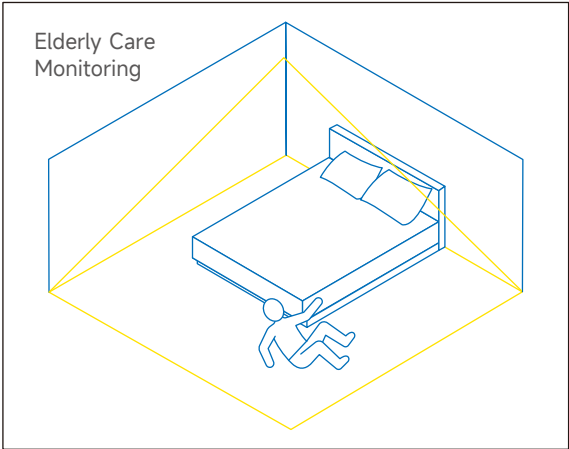
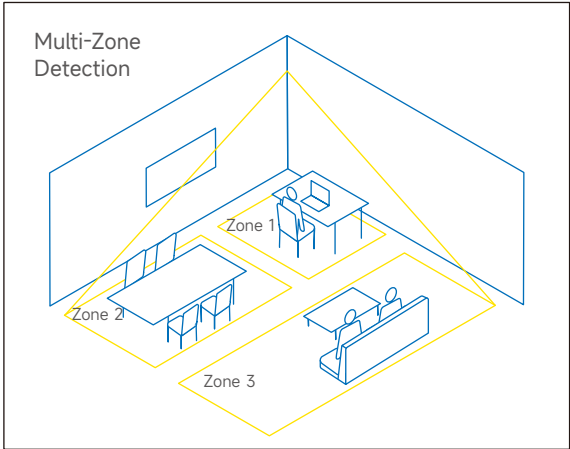
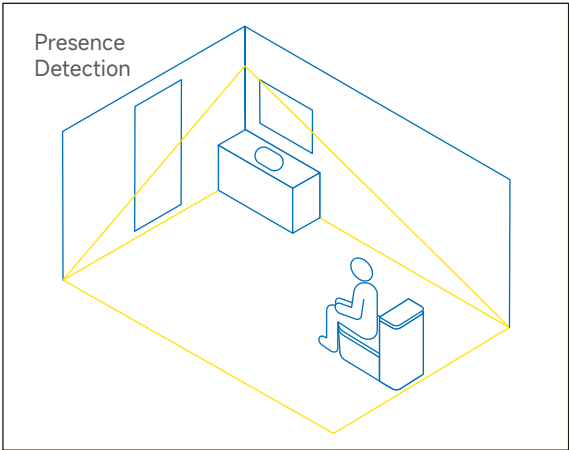
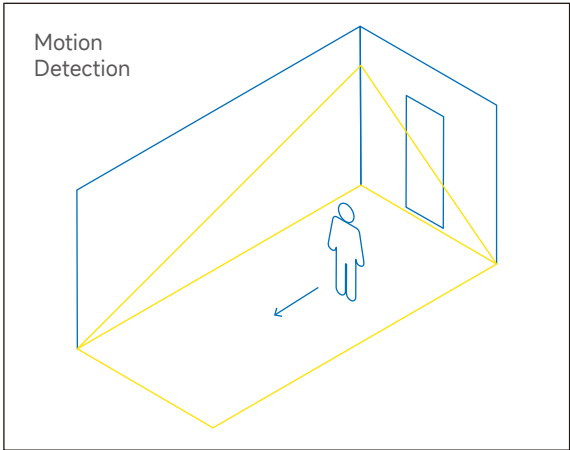


ALL-SCENE SPATIAL SENSING SENSOR

Self-Developed Full-Stack Intelligent Sensing Smart IoT





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PIR Series	MSA246S IR A	MSA227S IR B1	MSA221 IR
	MSA246S IR A2	MSA050S IR	MSA222 IR
	MSA069S IR	MSA250S IR	MSA015S IR
Radar Series	MSA227S 99 B1	MSA235S 99	MSA003S RC
	MSA050S 99 Z	MSA219 RF A	MSA040S 99
	MSA063S 99	MSA065S 99	MSA001S 1
	MSA246S 99	MSA215 99	MSA224 RF
	MSA202S RC		

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PIR Series	MSA050S IR V
Radar Series	MSA246S 99 V

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PIR Series	MSA236D IR	MSA221D IR	MSA015D IR
	MSA238D IR	MSA222D IR	MSA050D IR
	MSA070D IR		
Radar Series	MSA237D 99	MSA215D 99	MSA003D RC
	MSA200D RC	MSA245D 99	MSA001 D
	MSA040D 99	MSA219D 99 B	MSA001D E
	MSA219D 99		

DALI.....67

PIR Series	MSA227 IR B1	MSA050 IR
Radar Series	MSA227 99 B1	MSA063 99

DALI 2.0.....71

PIR Series	MSA070 IR	MSA059D IR	MSA017D IR
Radar Series	MSA205	MSA055	

KNX.....77

PIR Series	MSA070K IR	MSA017K IR	MSA237K 99 IR
Radar Series	MSA237K 99 A	MSA219K 99 A	MSA237K 99 E
	MSA237K 99 C	MSA219K 99 B	MSA056K 99
	MSA206K 99	MSA237K 99 D	

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PIR Series	MSA227S IR B1	MSA246S IR B1
	MSA227 IR B1	MSA246 IR B1
Radar Series	MSA227S 99 B1	MSA246S B1
	MSA227 99 B1	MSA211 B

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PIR Series	MSA236D IR 485	MSA070D IR 485
	MSA238D IR 485	
Radar Series	MSA237D 99 485	MSA203D 485

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Radar Series	MSA07	MSA201 Z	MSA219 Z
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Company Profile

Dedicated to innovation in intelligent lighting and sensing control for 18 years

Merrytek was founded in 2011. Headquartered in Shenzhen, the city of innovation and vitality. We are a leading provider of "Intelligent lighting control and Smart sensing solutions" in China.

As a pioneer in technological innovation of intelligent lighting control components, microwave radar/PIR/environmental sensors, we continue to provide professional products and technical solutions for fields such as intelligent lighting, smart buildings, smart homes, security door control, and health and elderly care.

2011

Established In Shenzhen

60+

R&D Team

800+

Authorized Patent

1100+

Serve Customers



Global Market

Innovation
Progress
Efficiency
Integrity
Honesty
Cooperation

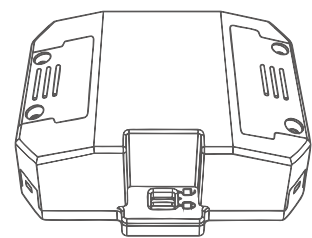
Merrytek is supported by its Shenzhen headquarters and has multiple offices and channel agents in provinces/cities such as Fujian, Shandong, Henan, Shaanxi, Shanxi, Hangzhou, Suzhou, Zhongshan, Changsha, Wuhan, Chengdu, Chongqing, and Shanghai. In addition to the Chinese market, Merrytek's products are also exported to countries and regions such as Europe, South America, North America, Southeast Asia, and Central Asia, providing high-quality products and services to over 1100 customers in 110 countries/regions.

Developing Process



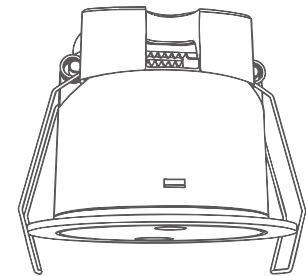
2015

Merrytek is the first in the industry to launch a human body micro motion detection sensor, which is applied to panel lights for office lighting.



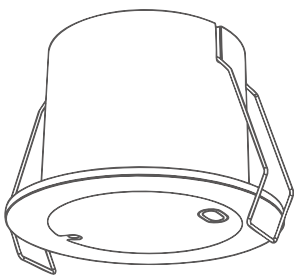
2022

Merrytek launches the second generation: 24GHz millimeter wave human presence sensor, which uses Merrytek's independently designed RF antenna "24GHz millimeter wave half wave folded antenna" with large detection angle and high gain characteristics. The product achieves overlapping detection distances for major motion, minor motion, and presence, becoming a major highlight product in the industry.



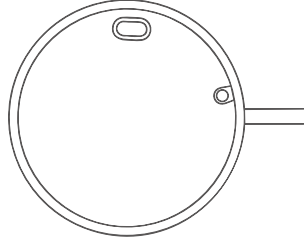
2024

Merrytek upgraded to the 3rd-generation Human Presence Sensor, featuring German automotive-grade chips combined with self-developed patented antenna technology. The presence detection coverage reaches up to 8 meters in diameter. Uniform coverage of nearly circular areas. With enhanced antiinterference capabilities, it delivers precise identification without false triggers.



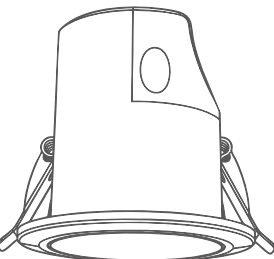
2026

Merrytek released the 4th-generation Human Presence Sensor — the industry's first plug-and-play AI Human Presence Sensor. It pioneers AI adaptive spatial matching detection, automatically configuring sensing parameters for instant use upon powering on. Built-in 6 core features combined with proprietary machine algorithms and AI models effectively eliminate 99.9% of common indoor interference, bringing an even more precise presence detection experience.



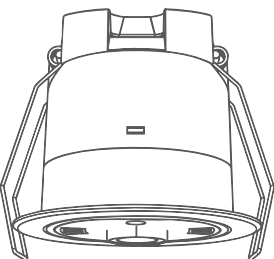
2018

Merrytek is the first company in the industry to launch the "5.8GHz human presence sensor". This product uses Merrytek's self-developed "low-impedance dual-fed large-beam microwave module". The product is widely used in smart office, smart home, and smart hotel related smart scenes.



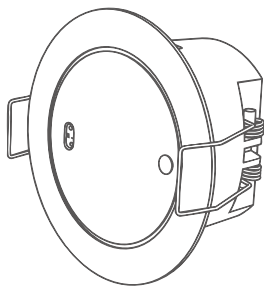
2023

We have developed "deep sleep detection sensors", "human occupancy sensors", and "AI posture sensors" for different application scenarios in the industry, enriching and improving the solutions of sensors in the field of intelligent buildings.



2025

Merrytek continues to drive innovation in the smart home consumer market. Integrated with the Mi Home ecosystem, Merrytek launched the Multi-Person Trajectory Tracking Presence Sensor M2, powered by a new generation of AI Ultra-Sensing technology to support multi-person tracking and multi-zone scene automation—all in one versatile device. Additionally, the wireless Mi Home Human Presence Sensor (Battery Edition M3) was released, featuring a 3-in-1 sensing system (PIR Infrared + 24GHz Millimeter-Wave Radar + Light Level Detection) and a flexible magnetic mount. With powerful features and versatile applications, it completes the puzzle for Mi Home whole-house smart scenarios.



Social Recognition



2022

Shenzhen Intellectual Property Advantage Unit



2022

National Intellectual Property Advantage Enterprise



2022

National High Tech Technology Companies



2023

Guangdong Provincial Engineering Technology Research Center for Intelligent Sensors of Human Body Microwave Detection



2023

Famous Brand in Shenzhen



2024

National Level Specialized and Innovative "Little Giant" Enterprise



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深圳迈舍智能科技有限公司



高新技术企业



2022年度
深圳市知识产权优势单位



广东省
人体微波探测智能传感器
工程技术研究中心

Intellectual Property

Since its establishment, Merrytek has accumulated over 600 intellectual property rights.

800+

Intellectual Property

86

Domestic Invention Patents

25

Foreign Invention Patents

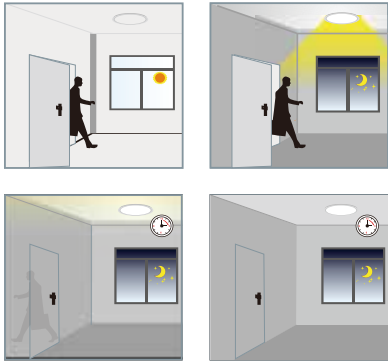


Technological Evolution

2008

The first generation planar antenna microwave detection technology

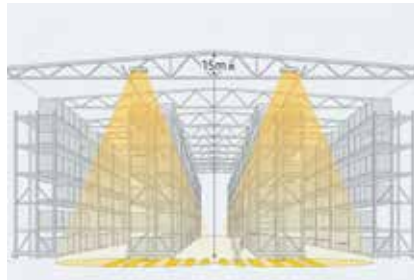
It takes the lead in unlocking 5.8GHz planar micro-band antenna scheme in China to replace the infrared induction matching luminaries and solve the problems of complex structure, short life and easy interference from environmental changes of induction luminaries.



2015

The first generation planar antenna high-mounted microwave detection technology

It is the first in the industrial and mining luminaries that supports 15m installation height, promoting the application of microwave induction energy saving schemes in high-roof environments such as warehouses, halls and museums.



2019

5.8GHz microwave breath presence detection technique

The industry's first to use 5.8GHz, ISM microwave frequency band to detect the stationary presence of human body. The product adopts the 'dual-feed high-gain large-beam angel' low-impedance antenna independently developed by Merrytek. The product can resist 2.4GHz Bluetooth, WiFi, ZigBee and other wireless interference signals, and also has the ability to detect breathing signals when the human body is at rest to realize the human presence detection function.



2022

Human body Lifebeing and posture recognition and detection technology

Adopt 60GHz millimeter wave radar 4D imaging technology and adopt AI algorithm and deep selflearning, adaptive algorithm! Identify human walking track and posture detection(fall detection)and human Lifebeing detection! Become the star product of the pension industry!

Differential antenna and new disturbance rejection algorithm technology

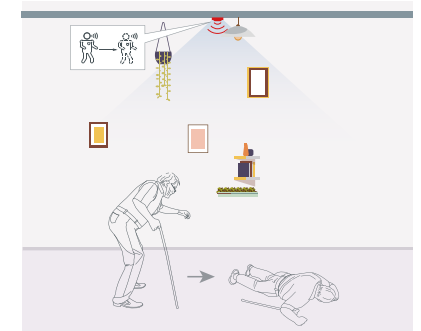
New antenna and differential balance mixing circuit, close to 0.1MW weak power current transmission, to achieve the compatibility of the same frequency band equipment, no interference, no wall, no glass, no self-excitation, suitable for indoor environment accurate detection and interval definition.



2025

MIMO radar point cloud imaging technology

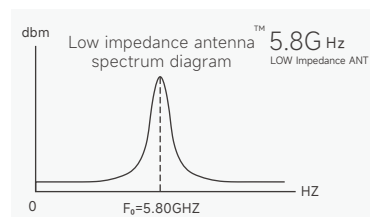
MIMO radar based on multi transmitter and multi receiver chips can measure target angle information, thereby achieving functions such as multi person trajectory tracking, number counting, and spatial partition control.



2014

The second generation planar antenna microwave detection technology

Resistance-capacitance step-down power supply, output positive and negative control relay, reduce stand-by power consumption, optimize product volume, reduce raw material cost.



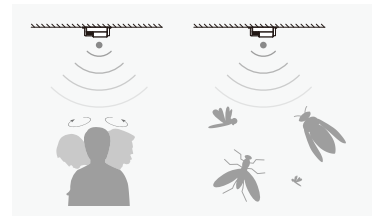
2017

Minor-motion technique

It is the first microwave sensing in the industry that uses microwave to detect minor movement (head up, head shaking, body movement, etc.), laying a technical foundation for the presence of induction.

Minor-motion technique

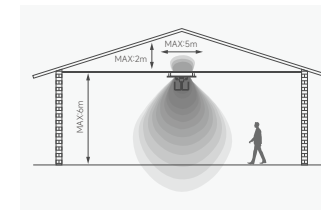
Using the core patent algorithm to resist the breeze, drizzle, birds and mosquitoes caused by the false trigger, laying the foundation for outdoor application of microwave technology.



2020

Dipole antenna technology

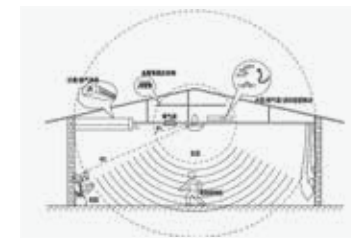
Using dipole antenna, small cut hole size, high gain, large beam angle, widely used in tri-proof light, line lights, etc, to solve the problem that detection area is short and the performance is unstable in parking lot application



2024

Microwave dynamic ranging partition detection technology

Anti interference algorithm for near-field shielding and far-field exclusion, Strengthen technical pre research capabilities and introduce a team of postdoctoral experts.Heavy launch of near area shielding and far area exclusion, stepping resistance and anti-interference. Improve 5.8GHz microwave mobile sensor and 24GHz The sensor performance of the body is at the forefront of the industry.



2026

AI Sensing Technology for Space Management

By increasing the quantity of transceiving channels and extending the transmission signal bandwidth, combined with advanced signal processing technologies including MIMO and DBF, the system can acquire high-precision human point cloud and vital status data. Further, it utilizes AI algorithms (e.g., deep learning) to achieve human posture & gesture recognition, fall detection and alarm, as well as vital sign estimation.



Cutting-edge Detection Technology

60GHz Detection Radar

Partition/Presence/Trajectory/headcount/Falls/In bed/Out of bed/Respiratory and heart rate monitoring



24GHz Detection Radar Distance

Distance measurement/ Major motion/ Minor motion/ Breath detection/ Partition detection/trajectory



ToF Ranging Sensor

Distance measurement/occupancy/presence detection



High Mounting Radar

15m installation height movement detection



PIR Infrared Pyroelectric

Cost-effective human motion detection with high temperature resistant flat lens



60GHz Millimeter Wave Radar

Based on Merrytek's self-developed MIMO antenna array, it can achieve precise four-dimensional scanning of targets and generate high-quality point cloud signals for human detection. Combined with deep machine learning and massive model training algorithms, it can accurately detect and output the number, posture (such as falls), presence, and positioning information of indoor personnel.

At the same time, this technology has the advantages of high stability, high accuracy, good security, and no invasion of personal privacy, which can meet various health monitoring needs and overcome the limitations of traditional detection methods (such as infrared and visual systems) in protecting user privacy.



24GHz Millimeter Wave Radar

Based on FMCW modulation, 24GHz millimeter wave radar can obtain real-time signal differences in both time and frequency domains between the transmitted and reflected signals.

Merrytek has adopted its self-developed real-time adaptive algorithm for bottom noise, which can accurately identify the weak motion characteristics of the chest and abdominal cavity generated by breathing in combination with the static state of the human body based on the shielding of interference motion signals such as curtains and green plants, thereby achieving precise human presence detection.



ToF (Time of Flight)

The distance between nodes is mainly measured by the time required for signals to travel back and forth between two asynchronous transceivers (or reflectors).

Traditional ultrasonic ranging has high requirements for reflecting objects and is basically unable to detect small objects such as linear and conical objects. This problem can be completely overcome, and Time of Flight (ToF) ranging has the characteristics of high accuracy, long measurement range, and fast response.



High Mounting Microwave Sensor

Based on Merrytek's self-developed high gain radar antenna and unique anti-interference algorithm, the Merrytek high mounting installation series millimeter wave radar can support human movement detection at a height of 15m, especially suitable for smart energy-saving applications such as warehouses and lobbies.



PIR (Passive Infrared)

Pyroelectric infrared (PIR) sensors utilize infrared radiation emitted by the human body (with a wavelength of approximately 10 micrometers). The flat Fresnel lens independently developed and designed by Merrytek divides the detection area more precisely while optimizing the appearance flatness and aesthetics, thereby enabling the pyroelectric detection element to generate high signal-to-noise ratio signals when the human body enters the detection range.

Another, due to Merrytek's high-temperature resistant and anti-interference algorithms, the Merrytek PIR sensors can solve the false triggering in interference environments such as high temperature, high humidity, and high light.



Wide Application

Full scene coverage

One solution full scene detection needs in home, office, elderly care, hotel, education, and other areas.



Smart lighting



Smart Home



Smart office



Smart Hotel



Smart Elderly Care



Smart Classroom

Different Mounting Way



Surface mounting



Flush mounting



Wall mounting



European standard European junction box mounting

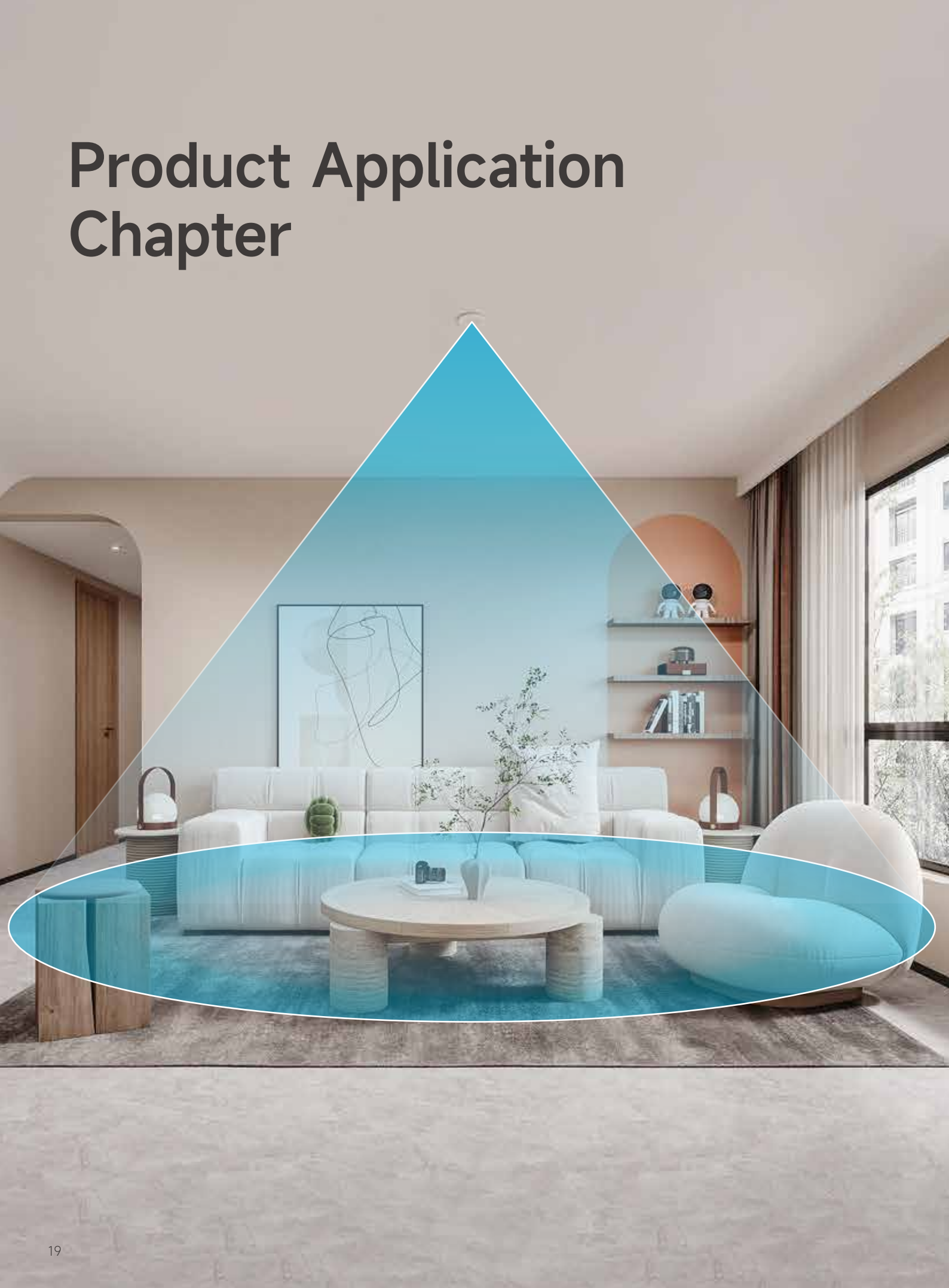
Comprehensive System Integration

Multi-protocol integration support

Dry contact/RS485 / ON /OFF/DALI/KNX/PLC/Tuya/Zigbee/WiFi/Bluetooth mesh/Casambi / 0-10V/Mi Home/Control 4 / Crestron



Product Application Chapter



Product Classification Table

Detection Technology	Function Application	Appearance Series	Connection Agreement
60GHz Detection Radar	Partition, Presence/Trajectory/headcount/Falls/in bed/Out of bed/Respiratory and heart rate monitoring Smart home/Smart hotel/Rehabilitation center/Elderly care institution		RS485/WiFi/Mi Home/Tuya
24GHz Detection Radar Distance	Distance measurement/ Major motion/ Minor motion/Breath detection/ Partition detection/ trajectory Smart Home/Smart Office/ Smart Hotel/Smart Security		Dry Contact/RS485/ON /OFF/DALI/KNX /PLC/Tuya/ Zigbee/ WiFi/bluetooth mesh/0-10V/Mi Home
ToF Ranging Sensor	Distance measurement/ occupancy/presence detection Smart Office/Smart Public Toilet Shared Office/Study Room		Dry Contact/RS485
5.8GHz High Mounting Radar	15m installation height movement detection High rise space/lobby/factory/ airport/duplex residence		Dry contact/RS485/high voltage switch/DALI/KNX/ PLC/Tuya/Zigbee/ WiFi/ Bluetooth Mesh/0-10V/ Mi Home
PIR Infrared Pyroelectric	Cost-effective human motion detection with high temperature resistant flat lens Entrance hall/Corridor/ corridor/stairwell		Dry contact/RS485/high voltage switch/DALI/KNX/ PLC/Tuya/Zigbee/WiFi/ Bluetooth mesh/0-10V

Smart Lighting



24GHz millimeter-wave radar

Human body presence, micro-movement, and movement sensing

Areas where people frequently move around, such as shops, office Spaces, restrooms, and parking lots, or remain stationary for long periods or have relatively small movements during use.



PIR infrared curtain

20° narrow-angle curtain human movement sensor

In scenarios such as staircases and window edges where human movement is detected within a narrow range, the infrared curtain will operate in the form of a sensing surface.



PIR infrared pyroelectric

Human body movement sensing

Scenarios such as corridors and doorways where human movement triggers sensing.



TOF occupancy sensing

Occupying existence sensing

Human movement detection and human presence maintenance detection applications in extremely small Spaces such as workstations, toilet stalls, and telephone halls.

Automatic turn on/off light

Automatic turn on/off light,when there is movement.

24GHz millimeter wave radar can be used in the display area and office area to detect mico movement and prensence.

Multi dimming (0-10V, DALI)

0/1-10V, DALI sensor, supports direct connection to lighting fixtures for multi-stage dimming

When there is no person, the light keeps dim. Once there is movement, light turns on 100%, after the person leaves, the light keep dim. The unmanned light is turned off, and the sensor detects that someone has passed by and turned on the light to brightness 1. If the person stays for more than 5 minutes, the light brightness will increase. After the person leaves, the light will turn off. If the unmanned light is turned off for a long time, the sensor senses that someone has passed by and turned on the light, which is brightness 1. After the person leaves, the light decreases to brightness 2, and the unmanned light is turned off for a long time.

Daylight harveting function

Based on the lighting value and human perception, provide automatic dimming for people in the scene to maintain a constant indoor illumination

Set the lights to be constantly on, with people triggering the scene lights, and the lights gradually turning on to the set value. Set the lights to light up within the threshold, and when people come, determine the ambient lighting conditions and automatically adjust the brightness of the lights to supplement the lighting based on the illuminance.



Smart Home



24GHz millimeter wave radar

Human presence, micro motion, and motion sensing

It is suitable for home scenarios such as kitchens, studies, bathrooms, and walk-in closets where users will remain stationary for long periods or have relatively small movements.



24GHz multi transmitter multi receiver millimeter wave radar

Detection of human presence, micro movement, movement, trajectory, and number of people

Suitable for large space scenarios such as living rooms and dining rooms, the multi-transmitter and multi-receiver 24GHz radar can divide the space, and a millimeter-wave radar can trigger applications for more precise zoning scenarios in large Spaces



PIR infrared Pyroelectric/ Low-mounting Human Movement radar

Human body movement sensing

Scenarios such as corridors and doorways where human movement triggers sensing.



PIR infrared curtain

20 ° Narrow Angle Curtain Type Human Movement Sensing

The aisle, windowsill, etc. need to be used in scenes with narrow detection ranges based on whether people have entered, accurately achieving scene triggering based on boundary control.

ON/OFF light

Turn on/ off light by sensor according to motion signal detected

24GHz millimeter wave radar can be used in restaurants and changing rooms to detect finer motion changes, including the presence of the human body in a stationary state and micro movements.

Rehabilitation Health Monitoring

Using auxiliary monitoring radar, you can monitor in real time whether the elderly in the home are falling / leaving / leaving the bed, real-time feedback or alarm

Real-time monitoring of the state of human activity can be used in the elderly room and real-time alarm for abnormal situations. Placed in the shower room and some areas where elderly people are prone to fall, you can also monitor in real time whether there is a fall and overtime.

Panel Priority

Programming with panel on/off as trigger condition, manual control in priority

The panel lights up, sensor isn't inter-connected to the lights - the sensor stops working.
The panel lights off, and the sensor starts to communicate with light.

Nighttime Mode

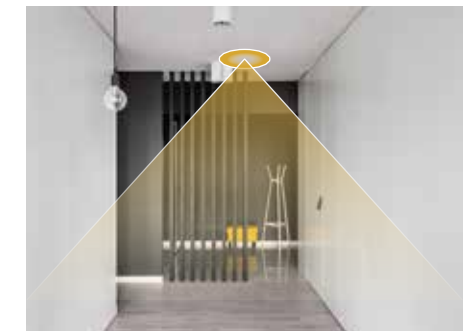
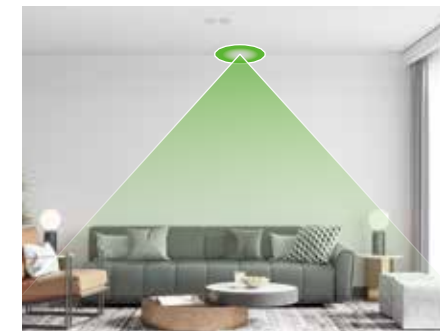
Programming with time and departure/return to bed as triggering conditions, set departure sensing, and automatically turn on the night light when it senses waking up at night

When a person is detected leaving the bed during non rest time, report the departure status without triggering the scene.
When a person leaves the bed within the set resting time, the night mode is triggered and the ambient night light is turned on.

Partition scene triggering

After dividing the space into multiple areas, trigger/close preset scenes without feeling based on the length of time people enter different areas and stay in corresponding areas

When a person enters the entrance hall, the entrance lighting lights up. After entering the living room, the living room lighting lights up and the security mode is turned on. If the person stays in the living room for more than 10 minutes and the indoor temperature is detected to be above 27 ° C, the central air conditioning will automatically turn on. When people leave the entrance, the brightness of the entrance lighting decreases to 10%. After no one in the entrance area exceeds 2 minutes, the lighting will automatically turn off. When a person leaves the living room, the central air conditioning adjusts the air volume to the lowest level. If there is no one in the living room for more than 3 minutes, the lights will automatically dim to 20%. If there is no one for more than 5 minutes, the lights will automatically turn off. If there is no one for more than 10 minutes, the air conditioning will automatically turn off.



Smart Office



24GHz millimeter wave radar

Human presence, micro motion, and motion sensing

Office, conference rooms, and other office scenarios that remain stationary for extended periods of time or have minimal movement.



PIR infrared curtain sensor

20°narrow detection angle PIR curtain detection pattern sensor

Applied in places such as stairs, window area with narrow range.



PIR infrared pyroelectric

Human motion sensing

Scenes triggered by human movement in corridors, front desks, etc



TOF distance monitoring sensor

High precision occupancy sensor

Applied in places like working station, bathroom

Workstation occupancy sensing

Program the presence or absence of personnel on the seat as a triggering condition and output a signal indicating whether the workstation is vacant or not

There is someone on the seat - activate the power supply equipment at the workstation and report the presence signal.
No one on the seat - automatically turn off all electrical equipment on the workstation and report the absence signal.

Turn on/off light automatically

Turn on/off light automatically according to motion signal detected by sensor

The elevated hall can use high mounting radar for sensing and detecting human movement and micro motion status.
24GHz millimeter wave radar can be used in dimming room to detect finer motion changes, including the presence of the human body in a stationary state and micro movements.

Comfort Scene Linkage

Using light intensity/weather/temperature and humidity as triggering conditions, linking smart devices to trigger the set scene

When the environmental conditions are sunny/comfortable/with a light intensity greater than 200Lux - open the curtains and do not turn on the lights.
When the environmental conditions are rainy/humid/the light intensity is less than 100Lux - close the curtains, turn on the lights, and turn on the dehumidification equipment.



Smart Hotel



Millimeter-wave radar technology presence detection in 24GHz

Human presence, micro motion, and motion sensing

Suitable for people who stay still for a long time or have small movements during the use of the master bedroom and bathroom in hotel rooms.



24GHz millimeter-wave deep sleep detection

Detect human movement, micro movement, and sleep status

Suitable for people in hotel rooms, master bedrooms, rest areas, etc. who may enter sleep and be covered with blankets, resulting in extremely weak chest and abdominal movement signals in the scene



PIR infrared pyroelectric/low mounting detection radar sensor

Human motion sensing

Suitable for scenarios where human movement is triggered and sensed in corridors, doorways, and other areas.



Auxiliary monitoring radar technology

Multi functional detection for falls/getting up at night/getting out of bed/leaving, etc

Suitable for high-risk areas such as bedrooms and bathrooms that are prone to falls, report any abnormal situations in a timely manner

Realize multi-sensor comprehensive judgment and precise card free power supply

By detecting the status of people through sensors, accurately judge the presence or absence of people in the guest room, and control the use of electricity in the room, Or report to the customer control system, linkingscenarios

Someone in the room - turn on the power in the room.
No one in the room - automatically turn off the electrical equipment inside the room.

Implementation - Abnormal Status Monitoring

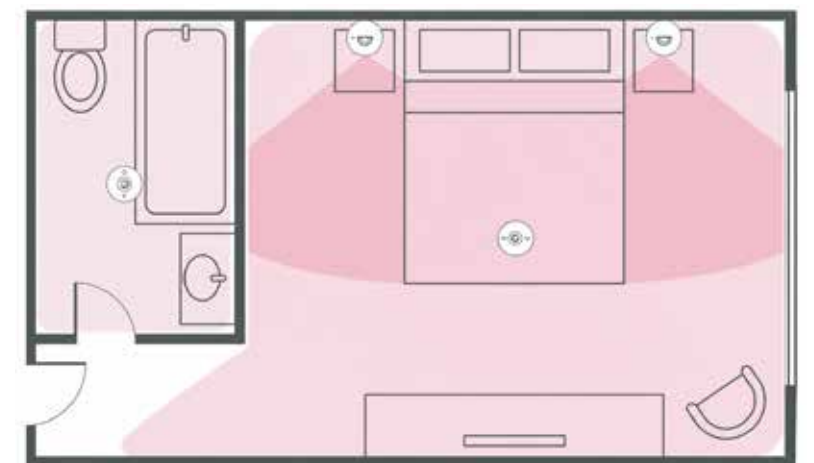
Detect any abnormal situations such as falls in certain areas and report them promptly for the hotel to manage and respond timely

When sensing abnormal situations such as falls in the bathroom, report the situation timely.

Implementation - Nighttime Mode

Programming with time and departure/return to bed as triggering conditions, set departure sensing in the auxiliary monitoring radar settings, and automatically turn on the night light when it senses waking up at night

When a person is detected leaving the bed during non rest time, report the departure status without triggering the scene.
When a person leaves the bed within the resting time, the night mode is triggered and the ambient night light is turned on.



Smart Elderly Care



PIR infrared pyroelectric

Human motion sensing

Scenes triggered by human movement in corridors, doorways, etc.



PIR infrared curtain detection pattern sensor

20 ° Narrow Angle Curtain Type Human Movement Sensing

Used in narrow range scenarios such as stairs and window edges to detect human movement.



Auxiliary monitoring radar

Multi functional detection for falls/getting up at night/getting out of bed/leaving, etc

Report any abnormal situations promptly in high-risk areas such as retirement bedrooms and bathrooms that are prone to slipping.

Abnormal State Alarm

Using auxiliary monitoring radar, it can detect in real time whether the elderly have fallen, got out of bed, woken up at night, or abnormal respiratory and heart rate status

When there are situations such as falls or abnormal retention, report them in real time so that rescue can be provided as quickly as possible.

Realization - The light follows the person's activity

Take on/off lights as conditions for programming, to control lights wirelessly

In areas such as the entrance hall and corridors where people walk but do not stay for a long time, PIR infrared sensors are used to detect human movement and trigger the lights in the area.

Infrared curtain sensor are used at the staircase to detect human movement within a narrow 20° Angle range and reduce false triggers.

Sleep/Breathing/Heart Rate Assisted Monitoring

Contactless devices assist in monitoring the sleep, breathing, and heart rate status of the elderly, respond promptly, and provide auxiliary care.

Realization- Intelligent linkage in different scenarios

Using light intensity/weather/temperature and humidity as triggering conditions, linking smart devices to trigger the scene

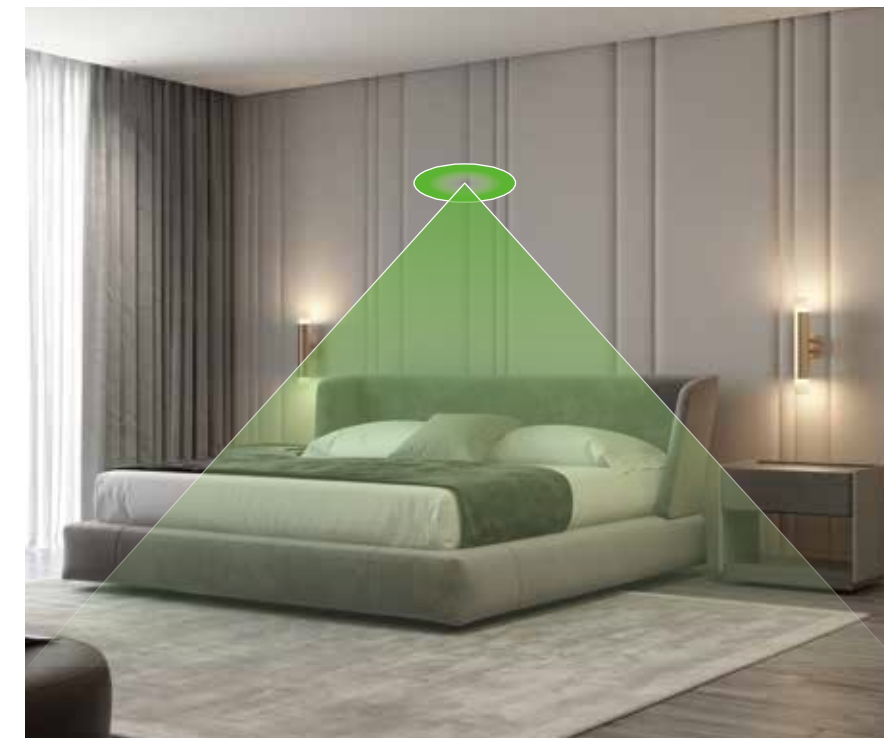
When the environmental conditions are sunny/comfortable/with a light intensity greater than 200Lux - open the curtains and do not turn on the lights. When the environmental conditions are rainy/humid/the light intensity is less than 100Lux - close the curtains, turn on the lights, and turn on the dehumidification equipment.

Nighttime Mode

Programming with time and departure/return to bed as triggering conditions, set departure sensing in the auxiliary monitoring radar settings, and automatically turn on the night light when it senses waking up at night

When a person leaves the bed during non rest hours, reporting the departure status does not trigger the scene.

When a person leaves the bed during the set rest time, the night mode is triggered and the ambient night light is turned on.



Smart Campus



24GHz millimeter wave radar

Human presence, micro motion, and motion sensing

Campus scenes such as classrooms and libraries that remain stationary for extended periods of time or have minimal movement during use.



PIR Infrared curtain

20 ° Narrow Angle Curtain Type Human Movement Sensing

Infrared curtains will work in the form of sensing surfaces when used in narrow range scenarios such as stairwells and doorways to detect human movement.



PIR infrared pyroelectric

Human motion sensing

Scenes triggered by human movement in corridors, doorways, etc

Sensorless on/off light

The sensor is programmed according to human presence and daylight value change, to achieve auto control.

24GHz millimeter wave radar can be used in display and office areas to detect more subtle motion changes, including the presence of the human body in a stationary state and micro movements.

Constant illumination dimming

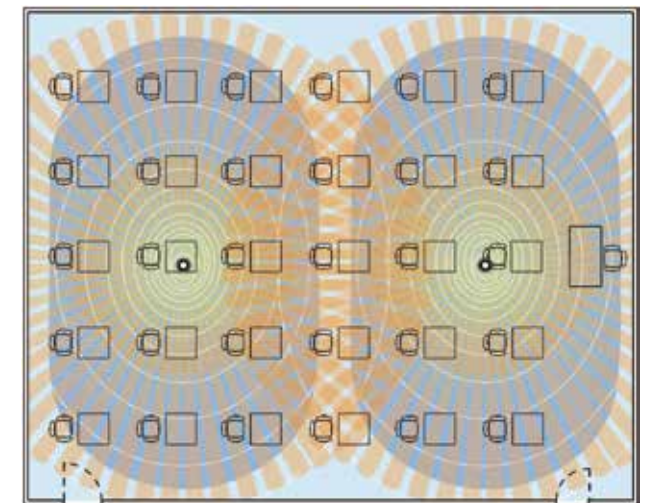
Based on the lighting value and human perception, provide automatic dimming for people in the scene to maintain a constant indoor illumination

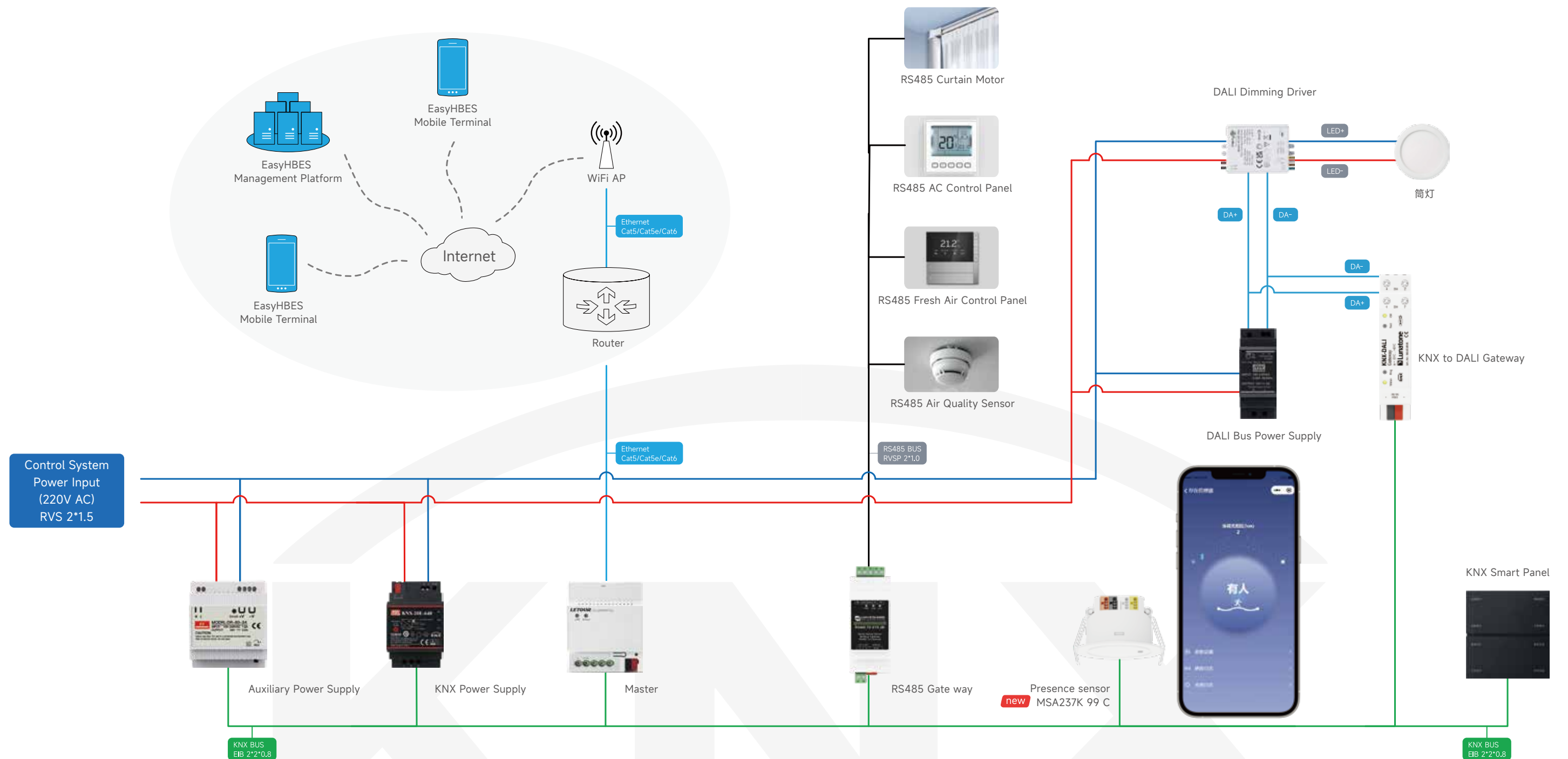
Set the light to be constantly on, scene is triggered by occupancy of people, automatically dim up or dim down light to maintain preset lux value. Set daylight threshold working mode, sensor will measure ambient brightness level when detect motion of people automatically dim up or dim down light to maintain preset lux value.

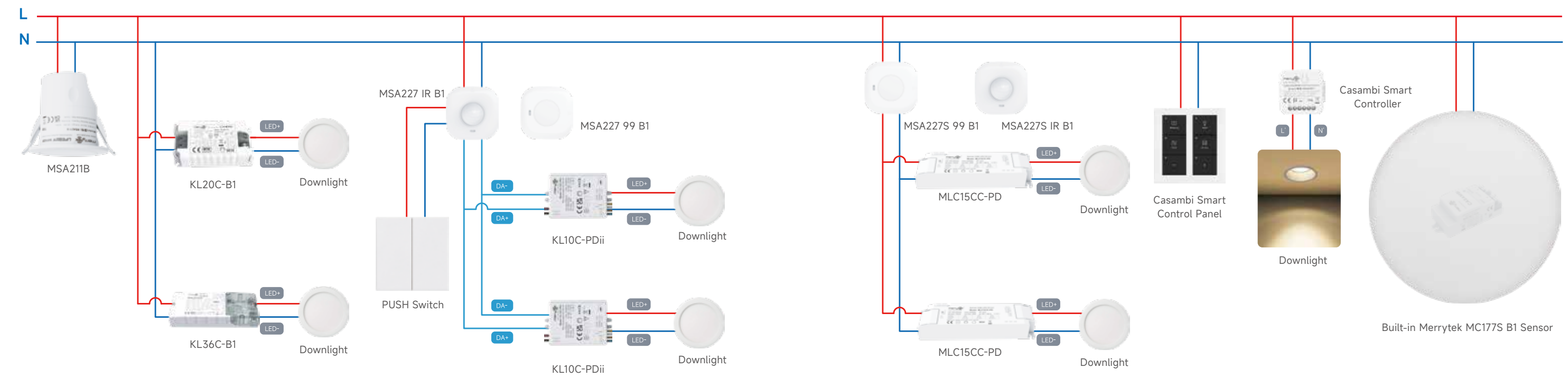
Multi segment dimming

0/1-10V, DALI sensor, supports direct connection to educational lighting fixtures for multi-stage dimming

Maintain light at half brightness when no one is around, full light when detect human motion, half brightness when people leave. Turn off light when on one is around, and switch on light at light level 1 when someone pass by, light level will be increased if people stay more than 5 minutes, switch off light when people leave. Turn off light when on one is around, and switch on light at light level 1 when someone pass by, dim light to low brightness level 2 after people leave, switch off light after time delay.







Product Section

Product Selection

Structural Accessories



Product Selection



	PIR high-mounting sensing	PIR low mounting sensing	TOF occupancy sensing	Radar high-mounting sensing	Radar low mounting sensing	Radar space presence sensor	Radar sleeping presence sensor	Radar occupancy presence sensor
ON/OFF	MSA015S IR MSA050S IR MSA050S IR V MSA227S IR B1 MSA250S IR	MSA221 IR MSA222 IR MSA069S IR MSA246S IR A MSA246S IR A2		MSA003S RC MSA224 RF	MSA040S 99 MSA001S 1	MSA202S RC MSA235S 99 MSA065S 99 MSA063S 99 MSA050S 99 Z MSA227S 99 B1 MSA219 RF A MSA246S 99		MSA215 99
0-10V	MSA050S IR V					MSA246S 99 V		
Passive dry contact	MSA015D IR MSA050D IR	MSA221D IR MSA222D IR MSA236D IR MSA238D IR MSA070D IR	MSA245D 99	MSA003D RC	MSA001D MSA001D E	MSA200D RC MSA237D 99 MSA219D 99 MSA040D 99	MSA219D 99 B	MSA215D 99
DALI	MSA050 IR MSA227 IR B1					MSA063 99 MSA227 99 B1		
DALI 2.0	MSA059DIR	MSA017D IR MSA070 IR			MSA055	MSA205		
KNX	MSA237K 99 IR	MSA017K IR MSA070K IR			MSA056K 99 MSA237K 99 D MSA237K 99 E	MSA206 K MSA219K 99 A MSA237K 99 A MSA237K 99 C	MSA219K 99 B	
Casambi	MSA227S IR B1 MSA227 IR B1	MSA246S IR B1 MSA246 IR B1				MSA211 B MSA227S 99 B1 MSA227 99 B1 MSA246S B1		
RS485		MSA236D IR 485 MSA238D IR 485 MSA070D IR 485				MSA203D 485 MSA237D 99 485		
Tuya		MSA053 Z				MSA201 Z MSA201 B4 MSA219 Z1 MSA050S 99 Z MSA07	MSA219 Z MSA220 Z	
Merrytek 2.4G RF				MSA224 RF		MSA219 RF A		

ON/OFF



Featuring a built-in relay, the high-voltage ON/OFF output interface directly controls load switching. It provides simple control logic, broad compatibility, and fast local response.

Merrytek ON/OFF series sensors can directly connect to devices for easy smart retrofitting without requiring integration into a complex smart control system, suitable for local automation scenarios.

Distribution Board

ON/OFF

PIR Series

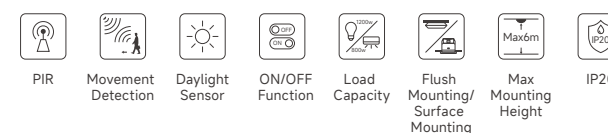


(SP-P Series)

PIR Low Mounting Motion Detect

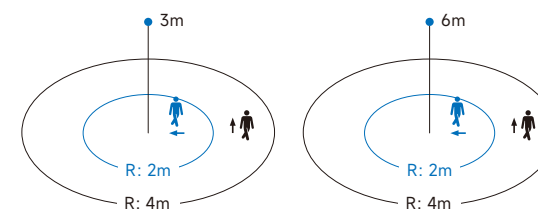
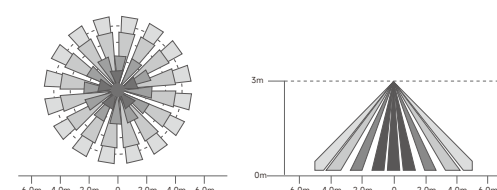
MSA246S IR A (ON/OFF)
MSA246S IR A2 (ON/OFF+Dry Contact)

Working Voltage	220-240V AC
Working Current	20mA max
Products Size	Φ63 (Inner Diameter) x80.5mm Φ80 (Outer Diameter) x80.5mm
Cut Hole Size	Φ65mm
Maximum Sensing Distance	Installation at 3m height, radius 4-5m Installation at 6m height, radius 4-5m
Lighting Threshold	5-150Lux / Disable
Mounting Height	2.5-6m (Typical Value: 3m)
Detection Technology	PIR Motion Detection+ Daylight Sensor
Mounting	Flush Mounting / Surface Mounting
IP Rating	IP20



Top View

Side View

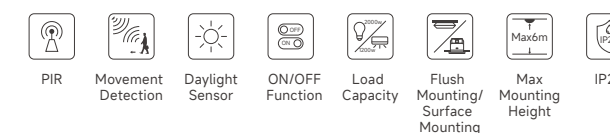


(SW-P Series)

PIR Low Mounting Motion Detect

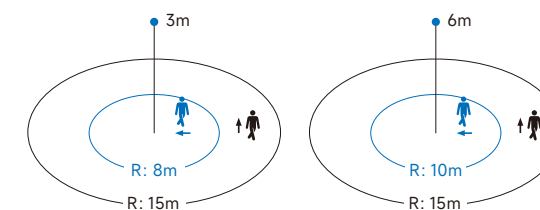
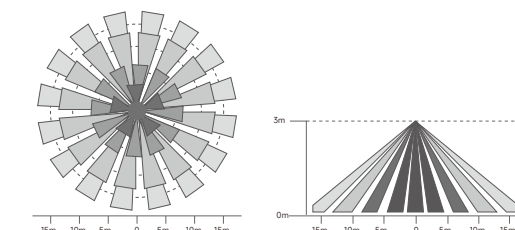
MSA069S IR (ON/OFF)

Working Voltage	220-240V AC
Working Current	20mA max
Products Size	Φ90x73.7mm
Cut Hole Size	Φ55mm
Maximum Sensing Distance	Installation at 3m height, radius 15-18m
Lighting Threshold	5-150Lux / Disable
Mounting Height	2.5-6m (Typical Value: 3m)
Detection Technology	PIR Motion Detection+ Daylight Sensor
Mounting	Flush Mounting/ European Junction Box Box / Surface Mounting (needs to be compatible with surface mounting kit)
IP Rating	IP20



Top View

Side View





(NH-P Series)

PIR High Mounting Motion Sensing

MSA227S IR B1 (ON/OFF+Casambi)
MSA050S IR (ON/OFF)

Working Voltage	100-240V AC
Working Current	20mA max
Products Size	105x105x80.8mm (Flush Mounting) 105x105x65.8mm (Surface Mounting)
Cut Hole Size	Φ55mm
Maximum Sensing Distance	Installation with a radius of 6m and a height of 8m
Lighting Threshold	5-150 Lux / Disable
Mounting Height	2.5-10m (Typical Value: 8m)
Detection Technology	PIR Motion Detection+ Daylight Sensor
Mounting	Flush Mounting / Surface Mounting / European Junction Box Box
IP Rating	IP54 (Surface Mounting) / IP20 (Flush mounting)



(SH-P Series)

PIR High Mounting Motion Sensing

MSA250S IR (ON/OFF)

Working Voltage	220-240V AC
Working Current	20mA max
Products Size	Φ120x64mm
Maximum Sensing Distance	Installation at 10m height, radius 15-18m Installation at 25m height, radius 3-5m
Lighting Threshold	5-150 Lux / Disable
Mounting Height	3-25m (Typical Value: 18m)
Detection Technology	PIR Motion Detection+ Daylight Sensor
Mounting	Surface Mounting
IP Rating	IP54 (Surface Mounting)



(NP-P Series)

PIR Low Mounting Motion Detect

MSA221 IR (ON/OFF)

Working Voltage	100-240V AC
Working Current	20mA max
Products Size	Φ52.5x34mm
Cut Hole Size	Φ55mm
Maximum Sensing Distance	Installation with a radius of 4m and a height of 3m
Lighting Threshold	5-50 Lux / Disable
Mounting Height	2-6m (Typical Value: 3m)
Detection Technology	PIR Infrared Pyroelectric+Photosensitive Detection
Mounting	Flush Mounting / Surface Mounting (needs to be compatible with surface mounting kit)
IP Rating	IP20

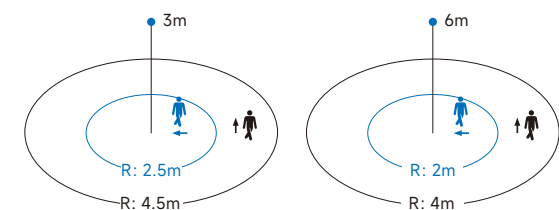
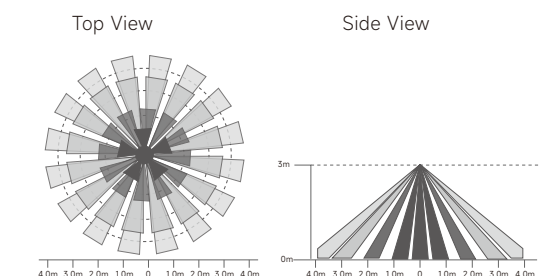
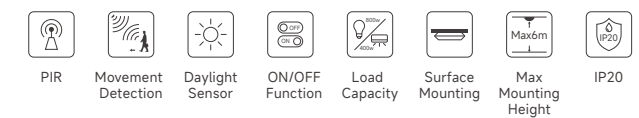
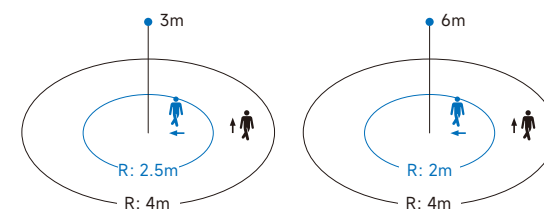
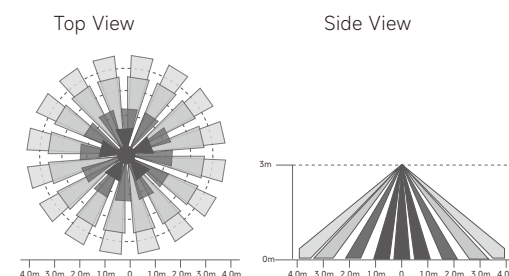
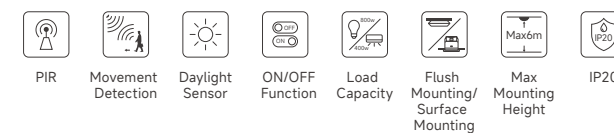
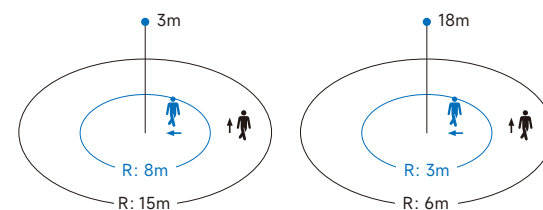
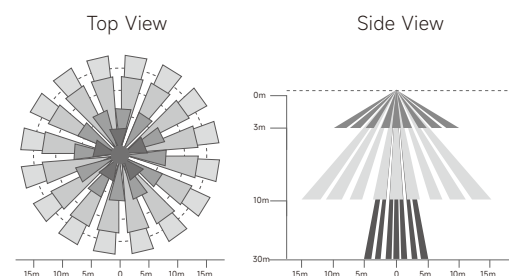
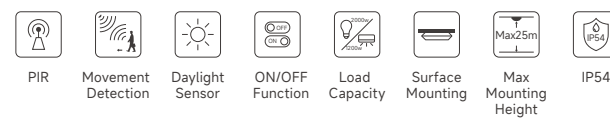
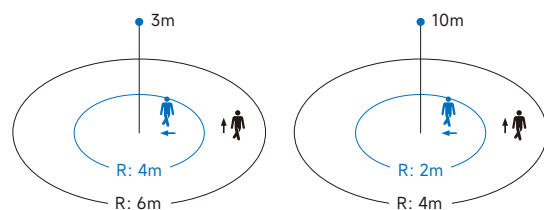
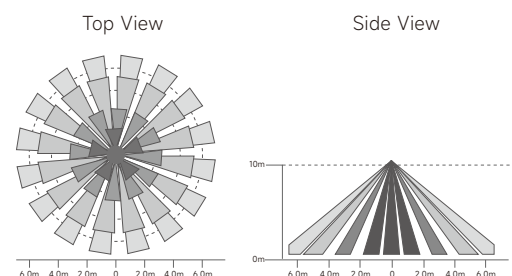
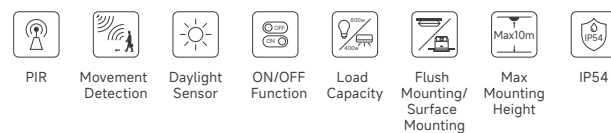


(NP-P Series)

PIR Low Mounting Motion Detect

MSA222 IR (ON/OFF)

Working Voltage	100-240V AC
Working Current	20mA max
Products Size	Φ105x32.4mm
Maximum Sensing Distance	Installation with a radius of 4m and a height of 3m
Lighting Threshold	5-150 Lux / Disable
Mounting Height	2-6m (Typical Value: 3m)
Detection Technology	PIR Infrared Pyroelectric+Photosensitive Detection
Mounting	Surface Mounting
IP Rating	IP20



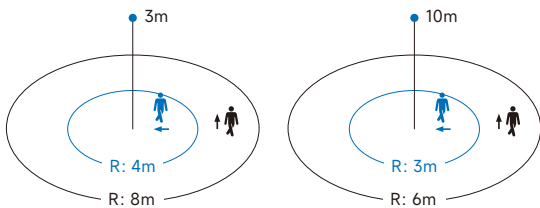
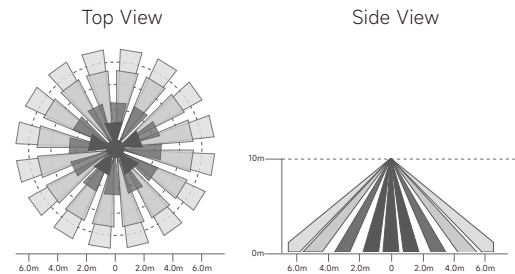
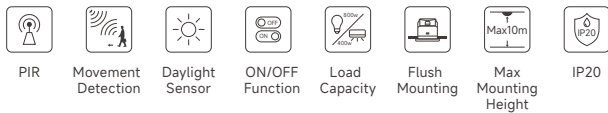


(NH-P Series)

PIR High Mounting Motion Sensing

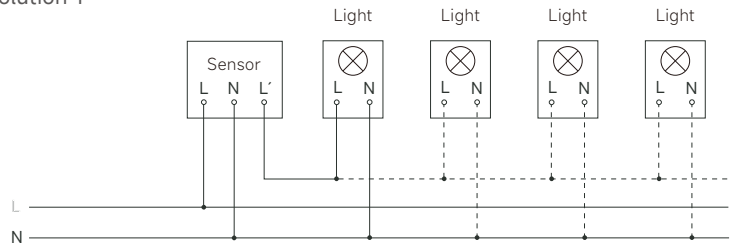
MSA015S IR (ON/OFF)

Working Voltage	100-240V AC
Working Current	20mA max
Products Size	Φ85x56mm
Cut Hole Size	Φ65-70mm
Maximum Sensing Distance	Installation with a radius of 6m and a height of 8m
Lighting Threshold	0-150 Lux / Disable
Mounting Height	2.5-10m (Typical Value: 8m)
Detection Technology	PIR Infrared Pyroelectric+Photosensitive Detection
Mounting	Flush Mounting
IP Rating	IP20



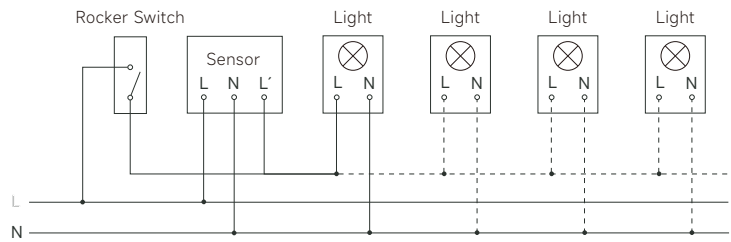
Application Diagram

Solution 1



The sensor output is connected to standard lights. When motion is detected, lights automatically turn ON; when people leave, lights automatically turn OFF.

Solution 2



The sensor output is connected in parallel with standard rocker switch. Turning ON the rocker switch keeps the light permanently ON. When the rocker switch is turned OFF, the system restores sensor control—lights automatically turn OFF when people leave and automatically turn ON when motion is detected.

Note

1. L and N are the AC input terminals; L' and N are the AC output terminals.
Please ensure correct wiring sequence during installation.
2. Single load requirement for single sensor output: Resistive load ≤800W, Capacitive load ≤400W. When connecting multiple loads, inrush current and total load must be comprehensively considered. If you only wish to consider the power rating of the connected loads, we recommend installing an AC contactor or AC solid-state relay at the sensor output terminal. This prevents sensor damage caused by instantaneous inrush current overload when one sensor controls multiple loads.

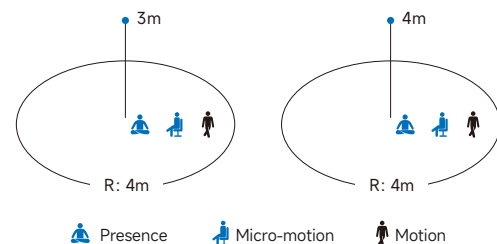
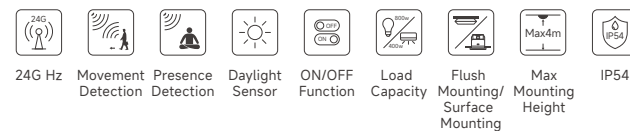


(NH-R Series)

Radar Presence Detection

MSA227S 99 B1 (ON/OFF+Casambi)
MSA050S 99 Z (ON/OFF+TuyaZigbee)
MSA063S 99 (ON/OFF+PUSH)

Working Voltage	100-240V AC
Working Current	50mA
Products Size	105x105x60.6mm (Flush Mounting) 105x105x45.6mm (Surface Mounting)
Cut Hole Size	Φ55mm
Maximum Sensing Distance	Radius movement/micro movement/existing 4m @ 3m high installation
Light Sensing Range	MSA227S 99 B1 / MSA050S 99 Z: 0-1200 Lux
Lighting Threshold	MSA063S 99: 0-150 Lux / Disable
Mounting Height	2.5-4m (Typical Value: 3m)
Detection Technology	24GHz Millimeter Wave radar for human Presence Detection+Photosensitive Detection
Mounting	Flush Mounting/Surface Mounting/ European Junction Box
IP Rating	IP54(Surface Mounting)/IP20(Flush Mounting)

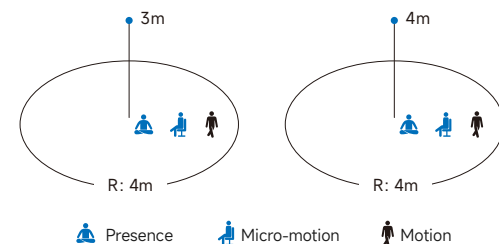
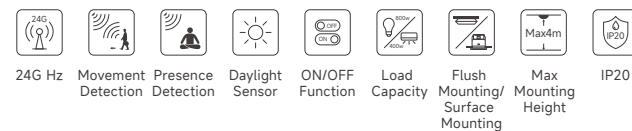


(SP-R Series)

Radar Presence Detection

MSA246S 99 (ON/OFF)

Working Voltage	220-240V AC
Working Current	20mA max
Products Size	Φ63 (Inner Diameter) x80.5mm Φ80 (Outer Diameter) x80.5mm
Cut Hole Size	Φ65mm
Maximum Sensing Distance	Installation at 3m height, radius 4m Installation at 6m height, radius 4m
Lighting Threshold	5-150Lux / Disable
Mounting Height	2-4m (Typical Value: 3m)
Detection Technology	24GHz Millimeter Wave radar for human Presence Detection+Photosensitive Detection
Mounting	Flush Mounting / Surface Mounting(needs to be compatible with surface mounting kit)
IP Rating	IP20

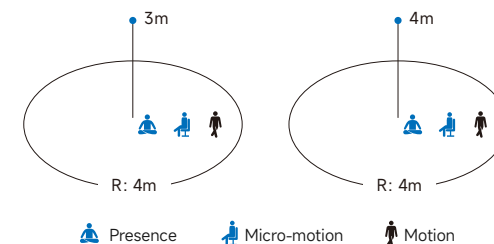
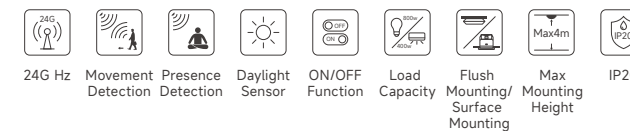


(NP-R Series)

Radar Presence Detection

MSA202S RC (ON/OFF)

Working Voltage	100-240V AC
Working Current	50mA max
Products Size	Φ65x51.5mm
Cut Hole Size	Φ55mm
Maximum Sensing Distance	Radius movement/micro movement/existing 4m @ 3m high installation
Lighting Threshold	0-150 Lux / Disable
Mounting Height	2-4m (Typical Value: 3m)
Detection Technology	24GHz Millimeter Wave radar for human Presence Detection+Photosensitive Detection
Mounting	Flush Mounting / Surface Mounting(needs to be compatible with surface mounting kit)
IP Rating	IP20

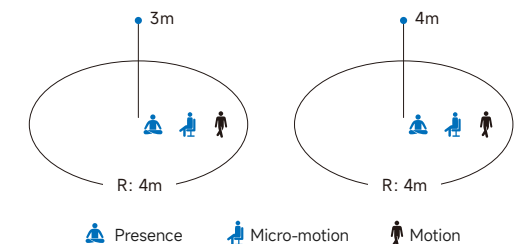
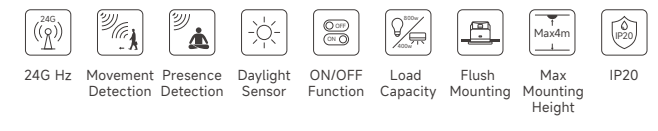


(NH-R Series)

Radar Presence Detection

MSA235S 99 (ON/OFF)

Working Voltage	100-240V AC
Working Current	50mA max
Products Size	Φ85x52.5mm
Cut Hole Size	Φ65-70mm
Maximum Sensing Distance	Radius movement/micro movement/existing 4m @ 3m high installation
Lighting Threshold	0-150 Lux / Disable
Mounting Height	2-4m (Typical Value: 3m)
Detection Technology	24GHz Millimeter Wave radar for human Presence Detection+Photosensitive Detection
Mounting	Flush Mounting
IP Rating	IP20





(NH-R Series)

Radar Presence Detection

MSA219 RF A (2.4G RF+ON/OFF)

Working Voltage	100-240V AC
Working Current	50mA max
Products Size	Φ80x66.5mm
Cut Hole Size	Φ65-70mm
Maximum Sensing Distance	Radius movement/micro movement/existing 4m @ 3m high installation
Light Sensing Range	0-150 Lux / Disable
Mounting Height	2-4m (Typical Value: 3m)
Detection Technology	24GHz Millimeter Wave radar for human Presence Detection+Photosensitive Detection
Mounting	Flush Mounting
IP Rating	IP20

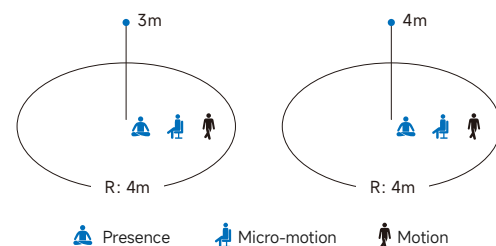
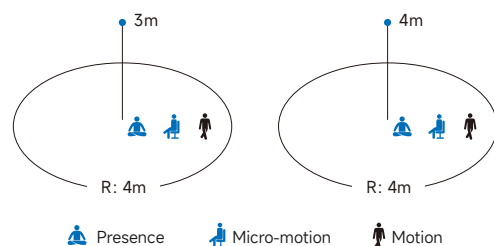


(NP-R Series)

Radar Presence Detection

MSA065S 99 (ON/OFF)

Working Voltage	100-240V AC
Working Current	50mA max
Products Size	110x110x32mm
Maximum Sensing Distance	Radius movement/micro movement/existing 4m @ 3m high installation
Lighting Threshold	0-150 Lux / Disable
Mounting Height	2-4m (Typical Value: 3m)
Detection Technology	24GHz Millimeter Wave radar for human Presence Detection+Photosensitive Detection
Mounting	Surface Mounting
IP Rating	IP20

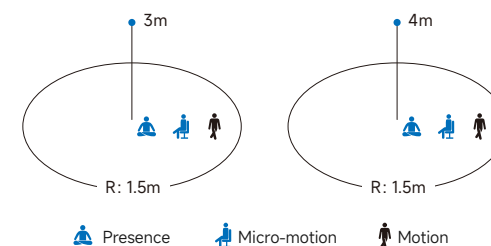
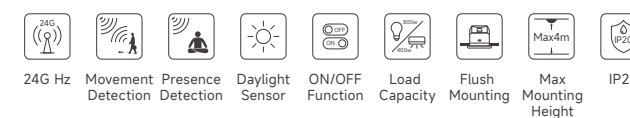


(NH-R Series)

Radar Occupancy Presence Sensor

MSA215 99 (ON/OFF)

Working Voltage	100-240V AC
Working Current	125mA max
Products Size	Φ85x52.5mm
Cut Hole Size	Φ65-70mm
Maximum Sensing Distance	Radius movement/micro movement/with a long side of 1.5m @3m high installation
Light Sensing Range	0-150 Lux / Disable
Mounting Height	2-4m (Typical Value: 3m)
Detection Technology	24GHz Millimeter Wave radar for human Presence Detection+Photosensitive Detection
Mounting	Flush Mounting
IP Rating	IP20

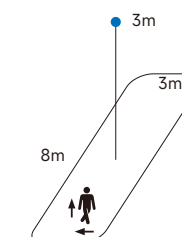
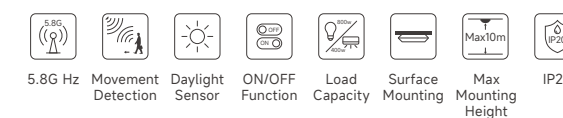


(NH-R Series)

Radar High Mounting Motion Sensing

MSA003S RC (ON/OFF)

Working Voltage	100-240V AC
Working Current	50mA max
Products Size	110x110x32mm
Maximum Sensing Distance	Installation with a radius of 8m for the long side and 3m for the short side at a height of 3m
Lighting Threshold	5-150 Lux / Disable
Mounting Height	2-10m (Typical Value: 3m)
Detection Technology	5.8GHz Microwave Human Movement Detection+ Photosensitive Detection
Mounting	Surface Mounting
IP Rating	IP20



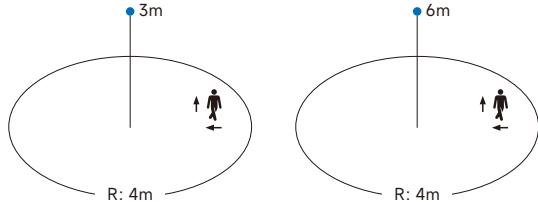
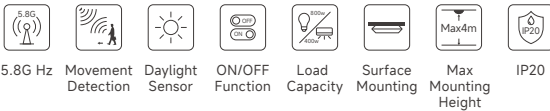


(NP-R Series)

Radar Low Mounting Motion Sensing

MSA040S 99 (ON/OFF)

Working Voltage	100-240V AC
Working Current	20mA max
Products Size	Φ105x23mm
Maximum Sensing Distance	Installation with a radius of 4m and a height of 3m
Lighting Threshold	0-150 Lux / Disable
Mounting Height	2.5-6m (Typical Value: 3m)
Maximum Load Power	400W Capacitive / 800W Resistive
Detection Technology	5.8GHz Microwave Human Movement Detection+Photosensitive Detection
Mounting	Surface Mounting
IP Rating	IP20

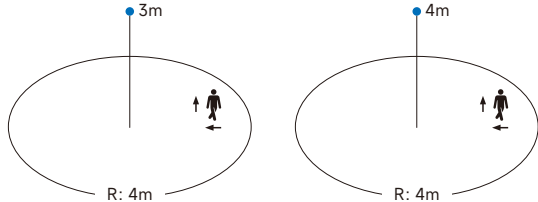
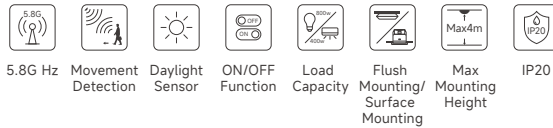


(NP-R Series)

Radar Low Mounting Motion Sensing

MSA001S 1 (ON/OFF)

Working Voltage	100-240V AC
Working Current	20mA max
Products Size	Φ65x51.5mm
Cut Hole Size	Φ55mm
Maximum Sensing Distance	Installation with a radius of 4m and a height of 3m
Lighting Threshold	0-150 Lux / Disable
Mounting Height	2.5-4m (Typical Value: 3m)
Maximum Load Power	400W Capacitive / 800W Resistive
Detection Technology	5.8GHz Microwave Human Movement Detection+ Photosensitive Detection
Mounting	Flush Mounting / Surface Mounting(needs to be compatible with surface mounting kit)
IP Rating	IP20

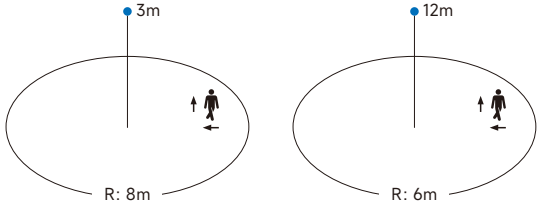
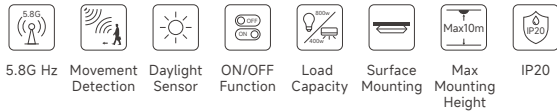


(NH-R Series)

Radar High Mounting Motion Sensing

MSA224 RF (ON/OFF)

Working Voltage	100-240V AC
Working Current	50mA max
Products Size	110x110x32mm
Maximum Sensing Distance	Installation at 12m height, radius 6m
Lighting Threshold	5-150 Lux / Disable
Mounting Height	3-12m (Typical Value: 3m)
Detection Technology	5.8GHz Microwave Human Movement Detection+ Photosensitive Detection
Mounting	Surface Mounting
IP Rating	IP20



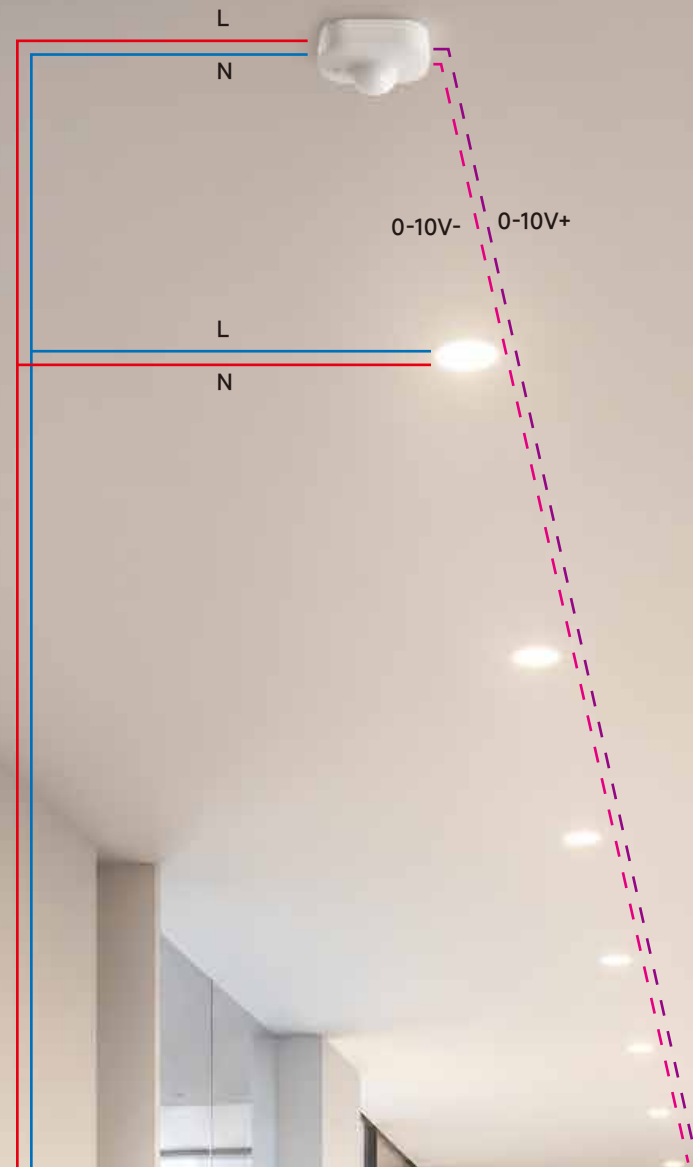
0-10V



The 0-10V dimming interface is the most widely used analog dimming technology in industrial and commercial lighting. Featuring high universal compatibility, crossbrand interconnectivity, and exceptional stability, it delivers smooth, stepless dimming.

Merrytek's 0-10V sensor series works with LED dimming drivers to realize 3-step dimming logic: 100% brightness upon motion detection, standby low light after hold-time, and automatic turn-off after the standby period if no presence is detected.

Distribution Board



0-10V

PIR Series

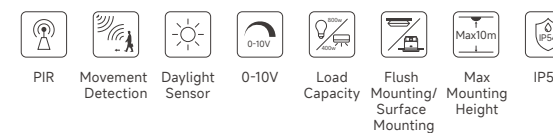


(NH-P Series)

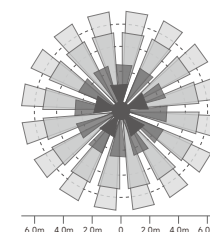
PIR High Mounting Motion Sensing

MSA050S IR V (ON/OFF+0-10V)

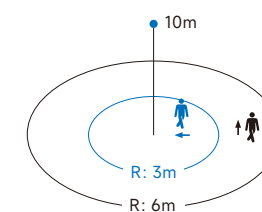
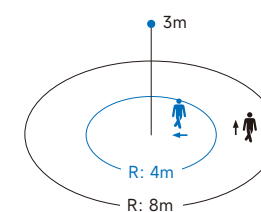
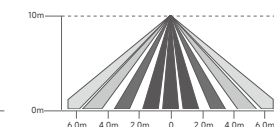
Working Voltage	100-240V AC
Working Current	20mA max
Products Size	105x105x80.8mm (Flush Mounting) 105x105x65.8mm (Surface Mounting)
Cut Hole Size	Φ 55mm
Maximum Sensing Distance	Installation with a radius of 6m and a height of 8m
Lighting Threshold	0-150 Lux / Disable
Mounting Height	2.5-10m (Typical Value: 8m)
Detection Technology	PIR Motion Detection+ Daylight Sensor
Mounting	Flush Mounting/Surface Mounting/European Junction Box
IP Rating	IP54 (Surface Mounting) / IP20 (Flush Mounting)



Top View



Side View



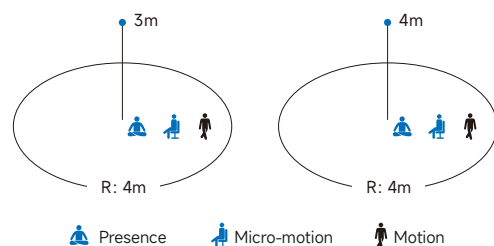
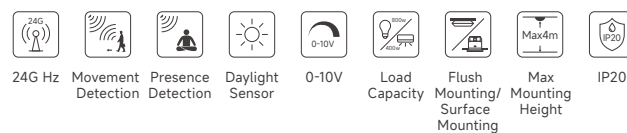


(SP-R Series)

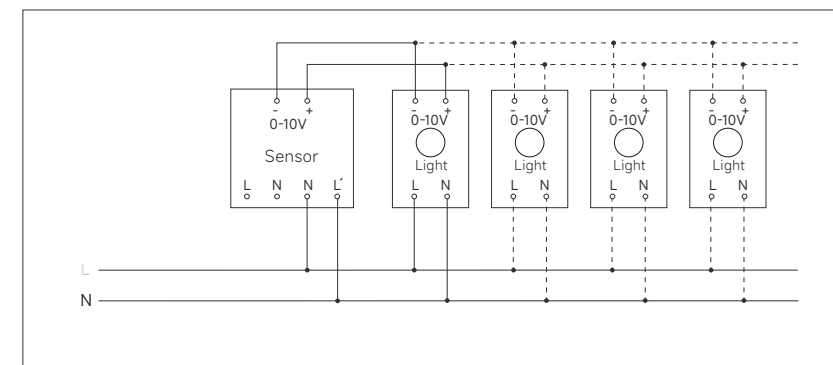
Radar Presence Detection

MSA246S 99 V (ON/OFF+1-10V)

Working Voltage	220-240V AC
Working Current	50mA max
Products Size	$\Phi 63$ (Inner Diameter) x80.5mm $\Phi 80$ (Outer Diameter) x80.5mm
Cut Hole Size	$\Phi 65$ mm
Maximum Sensing Distance	Installation at 3m height, radius 4-5m Installation at 6m height, radius 4-5m
Lighting Threshold	5-150Lux / Disable
Mounting Height	2-4m (Typical Value: 3m)
Detection Technology	24GHz Millimeter Wave radar for human Presence Detection+Photosensitive Detection
Mounting	Flush Mounting / Surface Mounting(needs to be compatible with surface mounting kit)
IP Rating	IP20



Application Diagram



Notes

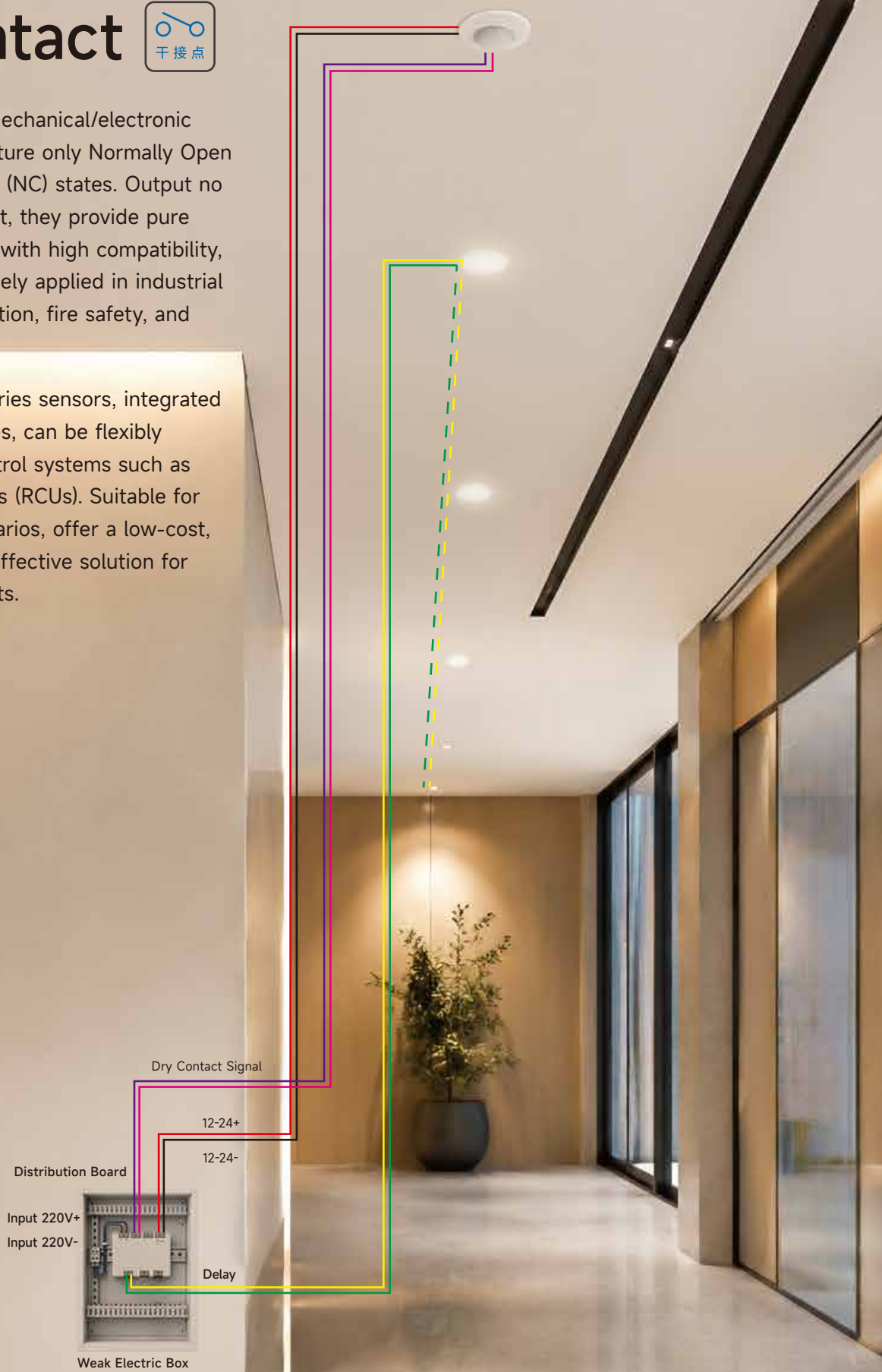
1. L and N are the AC input terminals; 0-10V+ and - are the 0-10V output terminals; L' and N are the ON/OFF switch output terminals. Please ensure correct wiring sequence during installation.
2. The maximum lead length for the 0-10V port is 10m, and the load current must not exceed 100mA.
3. Single load requirement for single sensor ON/OFF output: Resistive load $\leq 800W$, Capacitive load $\leq 400W$. When connecting multiple loads, inrush current and total load must be comprehensively considered. If you only wish to consider the power of the connected loads, we recommend installing an AC contactor or AC solid-state relay at the sensor output terminal. This prevents sensor damage caused by instantaneous inrush current overload when one sensor controls multiple loads.

Dry Contact



Dry contacts are pure mechanical/electronic switch contacts that feature only Normally Open (NO) or Normally Closed (NC) states. Output no voltage or current output, they provide pure digital switching signals with high compatibility, safety, and stability. Widely applied in industrial control, building automation, fire safety, and equipment linkage.

Merrytek dry contact series sensors, integrated with dry contact modules, can be flexibly connected to smart control systems such as hotel Room Control Units (RCUs). Suitable for various application scenarios, offer a low-cost, highly stable, and cost-effective solution for smart retrofitting projects.



Dry Contact

PIR Series

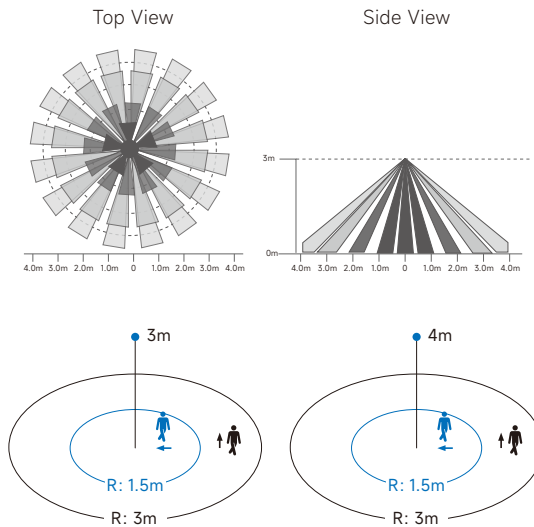
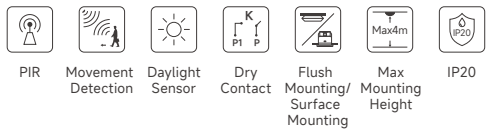


(NM-P Series)

PIR Low Mounting Motion Detect

MSA236D IR (Dry Contact)

Working Voltage	12-24V DC
Working Current	20mA max
Products Size	Φ58x34.5mm
Cut Hole Size	Φ45mm
Maximum Sensing Distance	Installation with a radius of 4m and a height of 3m
Lighting Threshold	0-50 Lux / Disable
Mounting Height	2.5-4m (Typical Value: 3m)
Detection Technology	PIR Motion Detection+ Daylight Sensor
Mounting	Flush Mounting / Surface Mounting(needs to be compatible with surface mounting kit)
IP Rating	IP20

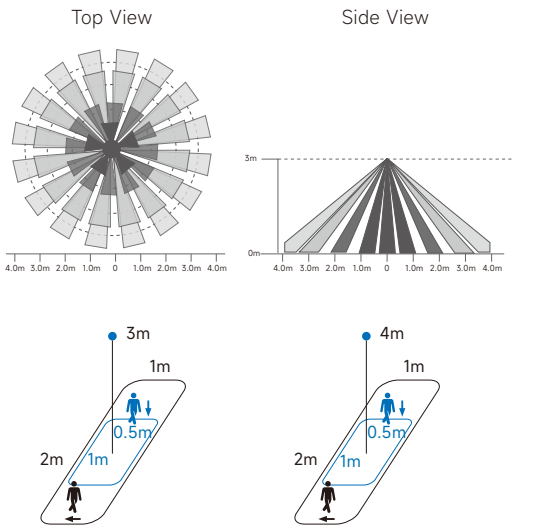
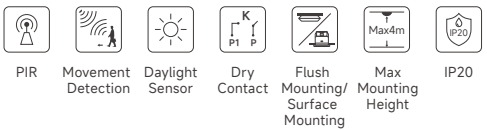


(NM-P Series)

PIR Low Mounting Motion Detect

MSA238D IR (Dry Contact)

Working Voltage	12-24V DC
Working Current	20mA max
Products Size	Φ58x34.5mm
Cut Hole Size	Φ45mm
Maximum Sensing Distance	Installation with a radius of 2m for the long side and 0.5m for the short side at a height of 3m
Lighting Threshold	0-50 Lux / Disable
Mounting Height	2.5-4m (Typical Value: 3m)
Detection Technology	PIR Motion Detection+ Daylight Sensor
Mounting	Flush Mounting / Surface Mounting(needs to be compatible with surface mounting kit)
IP Rating	IP20





NEW

(SM-P Series)

PIR Low Mounting Motion Detect

MSA070D IR (Dry Contact)

Working Voltage	12-24V DC
Working Current	20mA max
Products Size	Φ34x40mm
Cut Hole Size	Φ35mm
Maximum Sensing Distance	Installation at 3m height, radius 4-5m
Lighting Threshold	5-150Lux / Disable
Mounting Height	2.5-4m (Typical Value: 3m)
Detection Technology	PIR Motion Detection+Photosensitive Detection
Mounting	Flush Mounting
IP Rating	IP20



(NP-P Series)

PIR Low Mounting Motion Detect

MSA221D IR (Dry Contact)

Working Voltage	12-24V DC
Working Current	20mA max
Products Size	Φ52.5x34mm
Cut Hole Size	Φ55mm
Maximum Sensing Distance	Installation with a radius of 4m and a height of 3m
Lighting Threshold	5-50 Lux / Disable
Mounting Height	2-6m (Typical Value: 3m)
Detection Technology	PIR Infrared Pyroelectric+Photosensitive Detection
Mounting	Flush Mounting / Surface Mounting(needs to be compatible with surface mounting kit)
IP Rating	IP20



(NP-P Series)

PIR Low Mounting Motion Detect

MSA222D IR (Dry Contact)

Working Voltage	12-24V DC
Working Current	20mA max
Products Size	Φ105x32.4mm
Maximum Sensing Distance	Installation with a radius of 4m and a height of 3m
Lighting Threshold	5-150 Lux / Disable
Mounting Height	2-6m (Typical Value: 3m)
Detection Technology	PIR Infrared Pyroelectric+Photosensitive Detection
Mounting	Surface Mounting
IP Rating	IP20

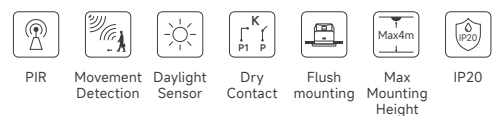


(NH-P Series)

PIR High Mounting Motion Sensing

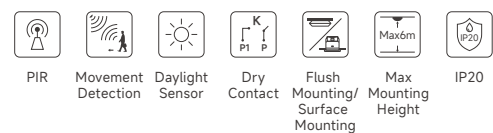
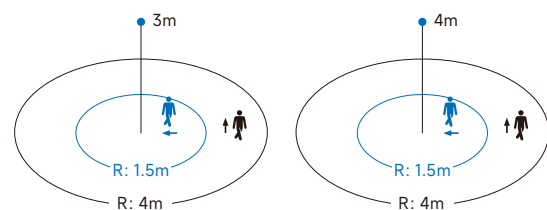
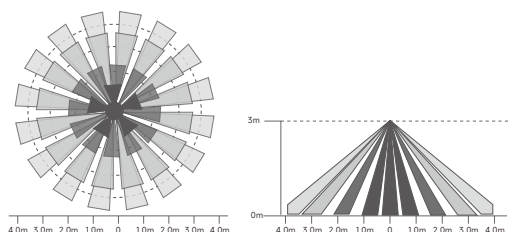
MSA015D IR (Dry Contact)

Working Voltage	12-24V DC
Working Current	20mA max
Products Size	Φ85x56mm
Cut Hole Size	Φ65-70mm
Maximum Sensing Distance	Installation with a radius of 6m and a height of 10m
Lighting Threshold	0-150 Lux / Disable
Mounting Height	2.5-10m (Typical Value: 8m)
Detection Technology	PIR Infrared Pyroelectric+Photosensitive Detection
Mounting	Flush Mounting
IP Rating	IP20



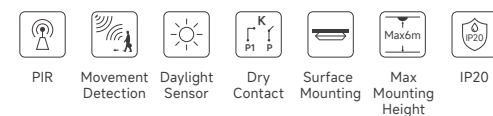
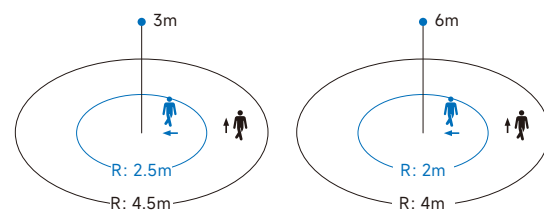
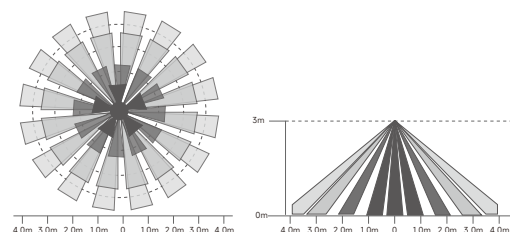
Top View

Side View



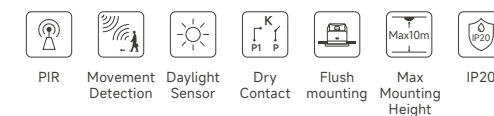
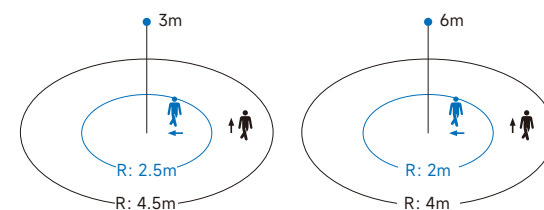
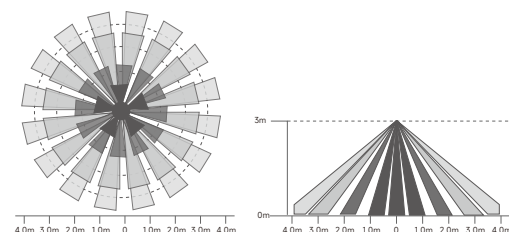
Top View

Side View



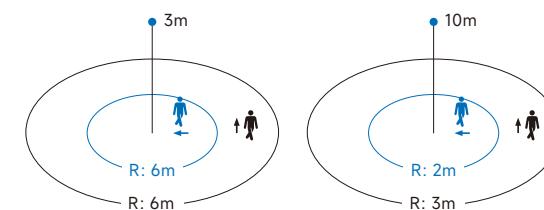
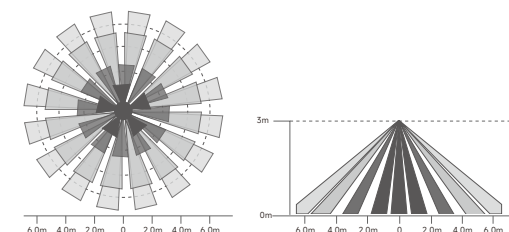
Top View

Side View



Top View

Side View



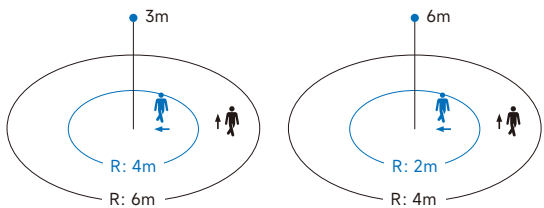
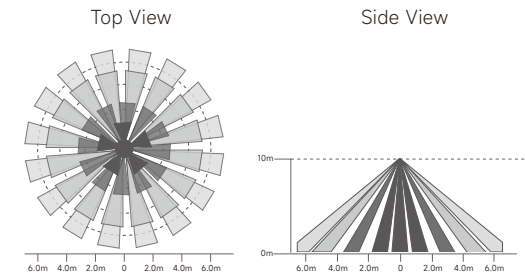
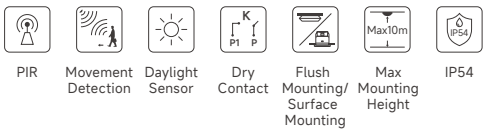


(NH-P Series)

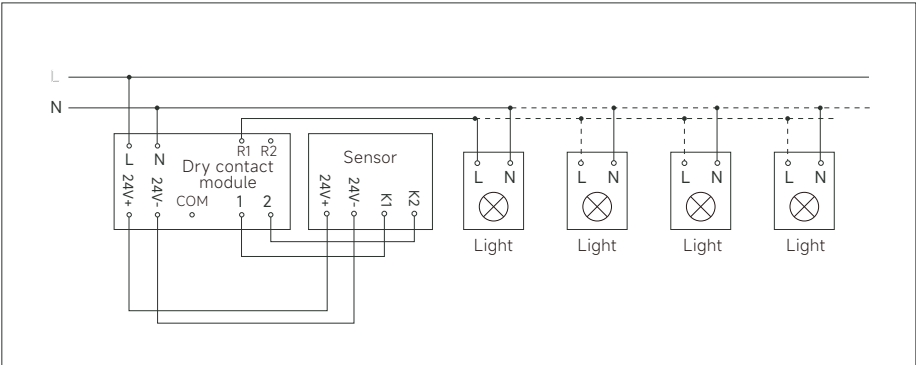
PIR High Mounting Motion Sensing

MSA050D IR (Dry Contact)

Working Voltage	12-24V DC
Working Current	20mA max
Products Size	105x105x80.8mm (Flush Mounting) 105x105x65.8mm (Surface Mounting)
Cut Hole Size	Φ55mm
Maximum Sensing Distance	Installation with a radius of 6m and a height of 8m
Lighting Threshold	0-150 Lux / Disable
Mounting Height	2.5-10m (Typical Value: 8m)
Detection Technology	PIR Infrared Pyroelectric+Photosensitive Detection
Mounting	Flush Mounting/Surface Mounting/ European Junction Box Box
IP Rating	IP54 (Surface Mounting) / IP20 (Flush mounting)



Application Diagram



Notes

1. For dry contact wiring, a daisy-chain hand-in-hand topology is recommended over star or tree topologies to ensure signal transmission stability.
2. When connecting multiple sensors or other devices to a single line, ensure that the total current consumption of all devices does not exceed the load capacity of the auxiliary power supply.



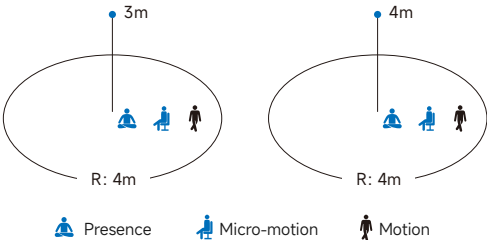
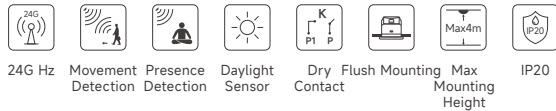
NEW

(NP-R Series)

Radar Presence Detection

MSA237D 99 (Dry Contact)

Working Voltage	12-24V DC
Working Current	50mA max
Products Size	Φ63x35mm
Cut Hole Size	Φ50-55mm
Maximum Sensing Distance	Radius movement/micro movement/existing 4m @ 3m high installation
Light Sensing Range	0-150 Lux / Disable
Mounting Height	2-4m (Typical Value: 3m)
Detection Technology	24GHz Millimeter Wave radar for human Presence Detection+Photosensitive Detection
Mounting	Flush Mounting
IP Rating	IP20

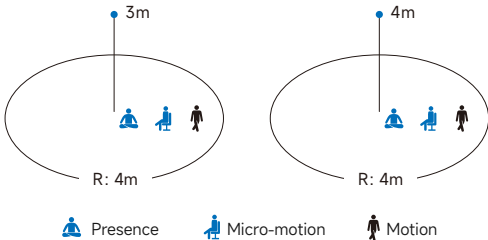
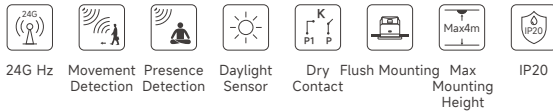


(NM-R Series)

Radar Presence Detection

MSA200D RC (Dry Contact)

Working Voltage	12-24V DC
Working Current	50mA max
Products Size	Φ65x51.5mm
Cut Hole Size	Φ45mm
Maximum Sensing Distance	Radius movement/micro movement/existing 4m @ 3m high installation
Lighting Threshold	0-150 Lux / Disable
Mounting Height	2-4m (Typical Value: 3m)
Detection Technology	24GHz Millimeter Wave radar for human Presence Detection+Photosensitive Detection
Mounting	Flush Mounting / Surface Mounting(needs to be compatible with surface mounting kit)
IP Rating	IP20

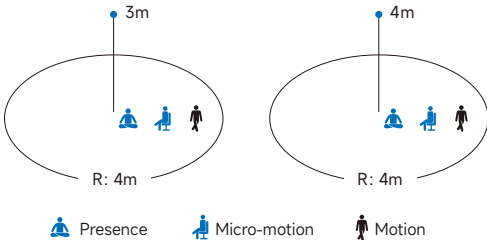
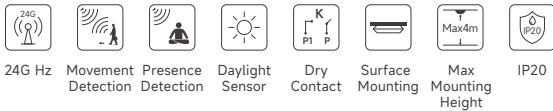


(NP-R Series)

Radar Presence Detection

MSA040D 99 (Dry Contact)

Working Voltage	12-24V DC
Working Current	100mA max
Products Size	Φ105x23mm
Maximum Sensing Distance	Installation with a radius of 4m and a height of 3m
Lighting Threshold	0-150 Lux / Disable
Mounting Height	2.5-4m (Typical Value: 3m)
Maximum Load Power	400WCapacitive / 800W Resistive
Detection Technology	24GHz Millimeter Wave radar for human Presence Detection+Photosensitive Detection
Mounting	Surface Mounting
IP Rating	IP20

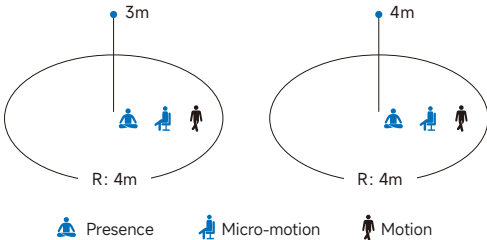
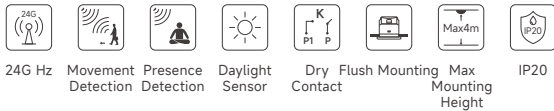


(NH-R Series)

Radar Presence Detection

MSA219D 99 (Dry Contact)

Working Voltage	12-24V DC
Working Current	50mA max
Products Size	Φ80x43.5mm
Cut Hole Size	Φ70mm
Maximum Sensing Distance	Radius movement/micro movement/existing 4m @ 3m high installation
Light Sensing Range	0-150 Lux/Disable
Mounting Height	2-4m (Typical Value: 3m)
Detection Technology	24GHz Millimeter Wave radar for human Presence Detection+Photosensitive Detection
Mounting	Flush Mounting
IP Rating	IP20



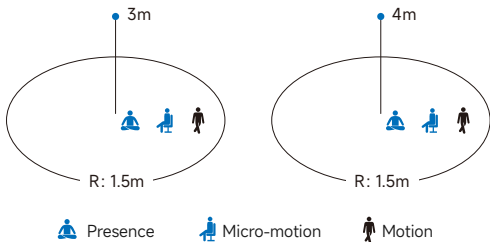
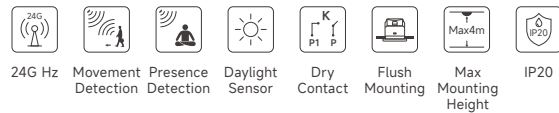


(NH-R Series)

Radar Occupancy Presence Sensor

MSA215D 99 (Dry Contact)

Working Voltage	12-24V DC
Working Current	125mA max
Products Size	Φ85x52.5mm
Cut Hole Size	Φ65-70mm
Maximum Sensing Distance	Radius movement/micro movement/with a long side of 1.5m @3m high installation
Light Sensing Range	0-150 Lux / Disable
Mounting Height	2-4m (Typical Value: 3m)
Detection Technology	24GHz Millimeter Wave radar for human Presence Detection+Photosensitive Detection
Mounting	Flush Mounting
IP Rating	IP20

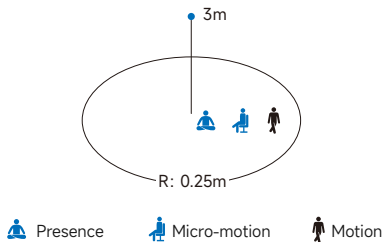
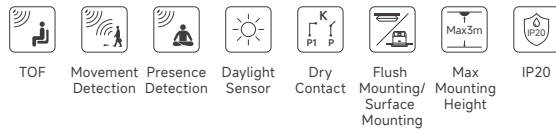


(NM-T Series)

TOF Occupancy Sensing

MSA245D 99 (Dry Contact)

Working Voltage	12-24V DC
Working Current	40mA max
Products Size	Φ58x34.5mm
Cut Hole Size	Φ45mm
Maximum Sensing Distance	Installation at 3m height, radius 0.25m
Lighting Threshold	0-50 Lux / Disable
Mounting Height	2.5-3m (Typical Value: 3m)
Detection Technology	PIR Motion Detection+ Daylight Sensor
Mounting	Flush Mounting / Surface Mounting (needs to be compatible with surface mounting kit)
IP Rating	IP20

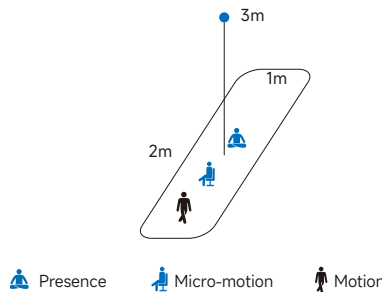
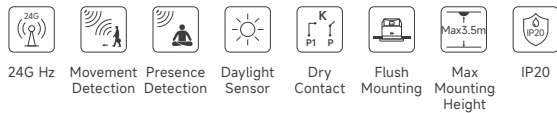


(NH-R Series)

Radar Sleep Presence Sensing

MSA219D 99 B (Dry Contact)

Working Voltage	12-24V DC
Working Current	50mA max
Products Size	Φ85x45mm
Cut Hole Size	Φ70mm
Maximum Sensing Distance	Radius movement/micro movement/with a long side of 2m and a short side of 1m @3m high installation
Light Sensing Range	5-150 Lux / Disable
Mounting Height	2-3.5m (Typical Value: 3m)
Detection Technology	24GHz millimeter radar sleeping presence sensor+ Photosensitive Detection
Mounting	Flush Mounting
IP Rating	IP20

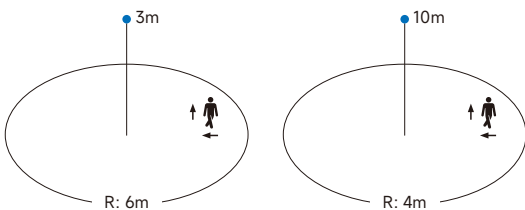
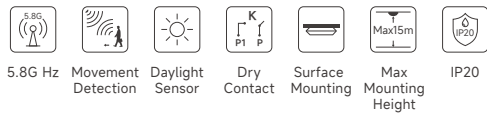


(NH-R Series)

Radar High Mounting Motion Sensing

MSA003D RC (Dry Contact)

Working Voltage	12-24V DC
Working Current	50mA max
Products Size	110x110x32mm
Maximum Sensing Distance	Installation at 12m height, radius 5m
Light Sensing Range	5-150 Lux / Disable
Mounting Height	3-15m (Typical Value: 3m/12m)
Detection Technology	5.8GHz Microwave Human Movement Detection+ Photosensitive Detection
Mounting	Surface Mounting
IP Rating	IP20



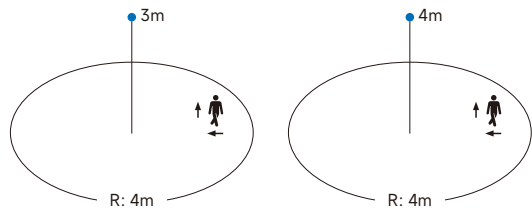
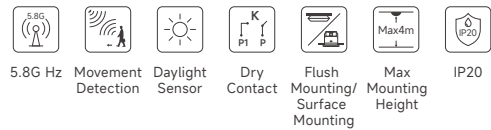


(NP-R Series)

Radar Low Mounting Motion Sensing

MSA001 D (Dry Contact)

Working Voltage	12-24V DC
Working Current	20mA max
Products Size	Φ65x51.5mm
Cut Hole Size	Φ55mm
Maximum Sensing Distance	Installation with a radius of 4m and a height of 3m
Light Sensing Range	0-150 Lux/Disable
Mounting Height	2.5-4m (Typical Value: 3m)
Detection Technology	5.8GHz Microwave Human Movement Detection+ Photosensitive Detection
Mounting	Flush Mounting / Surface Mounting(needs to be compatible with surface mounting kit)
IP Rating	IP20

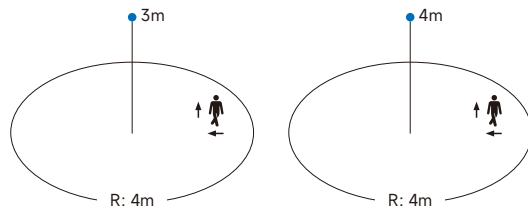
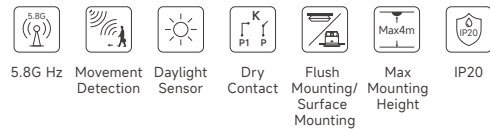


(NM-R Series)

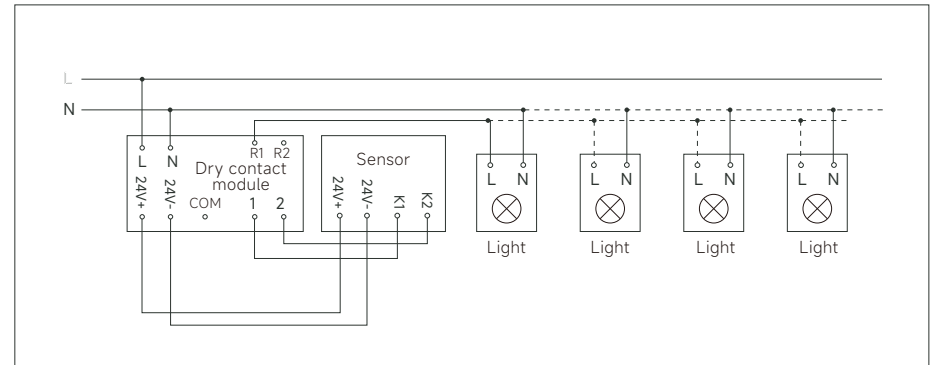
Radar Low Mounting Motion Sensing

MSA001D E (Dry Contact)

Working Voltage	2-24V DC
Working Current	20mA max
Products Size	Φ52.5x34.5mm
Cut Hole Size	Φ45mm
Maximum Sensing Distance	Installation with a radius of 4m and a height of 3m
Light Sensing Range	0-150 Lux / Disable
Mounting Height	2.5-4m (Typical Value: 3m))
Detection Technology	5.8GHz Microwave Human Movement Detection+ Photosensitive Detection
Mounting	Flush Mounting / Surface Mounting(needs to be compatible with surface mounting kit)
IP Rating	IP20



Application Diagram



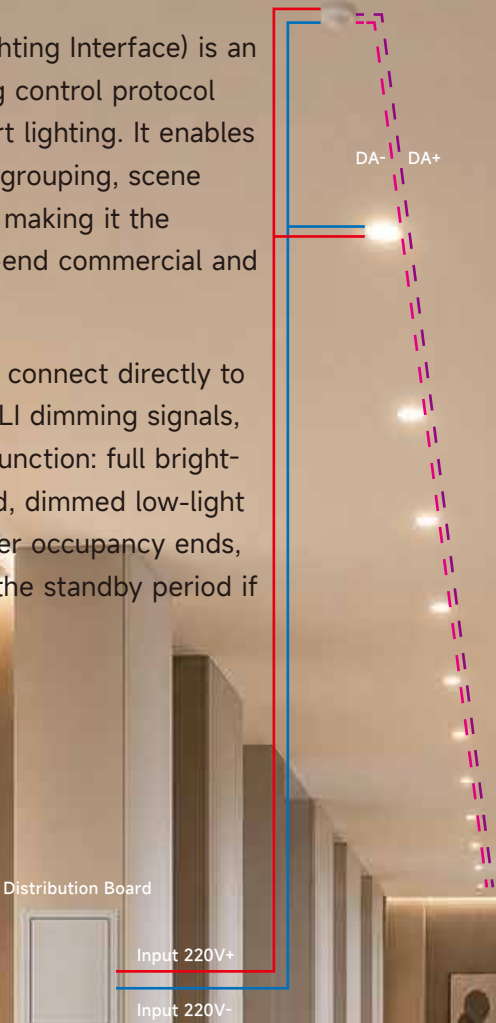
Notes

1. For dry contact wiring, a daisy-chain hand-in-hand topology is recommended over star or tree topologies to ensure signal transmission stability.
2. When connecting multiple sensors or other devices to a single line, ensure that the total current consumption of all devices does not exceed the load capacity of the auxiliary power supply.

DALI

DALI (Digital Addressable Lighting Interface) is an international standard lighting control protocol designed specifically for smart lighting. It enables individual fixture addressing, grouping, scene control, and status feedback, making it the mainstream solution for high-end commercial and architectural lighting.

Merrytek DALI series sensors connect directly to DALI luminaires to output DALI dimming signals, achieving a 3-step dimming function: full brightness when motion is detected, dimmed low-light level during the hold time after occupancy ends, and automatic turn-off after the standby period if no motion is detected.



DALI PIR Series

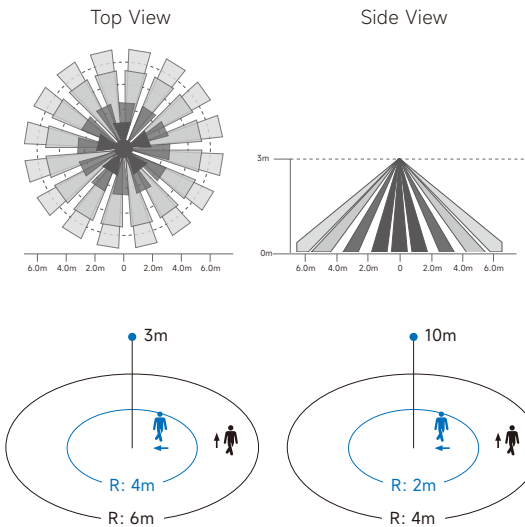
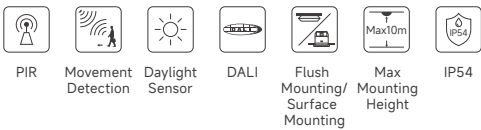


(NH-P Series)

PIR High Mounting Motion Sensing

MSA227 IR B1 (DALI+PUSH+Casambi)
MSA050 IR (DALI+PUSH)

Working Voltage	100-240V AC
Working Current	20mA max
Products Size	105x105x80.8mm (Flush Mounting) 105x105x65.8mm (Surface Mounting)
Cut Hole Size	Φ 55mm
Maximum Sensing Distance	Installation with a radius of 6m and a height of 10m
Light Sensing Range	MSA227 IR B1: 0-1200 Lux MSA050 IR: 0-150 Lux / Disable
Mounting Height	2.5-10m (Typical Value: 8m)
Detection Technology	PIR Motion Detection+ Daylight Sensor
Mounting	Flush Mounting/Surface Mounting/European Junction Box
IP Rating	IP54 (Surface Mounting) / IP20 (Flush mounting)



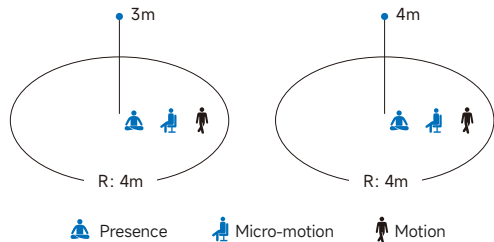
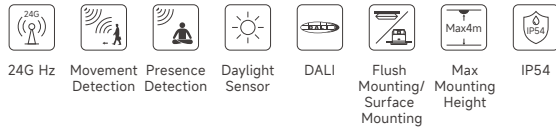


(NH-R Series)

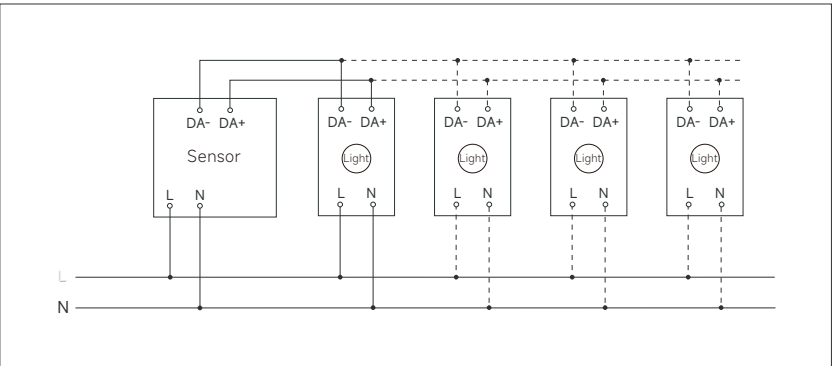
Radar Presence Detection

MSA227 99 B1 (DALI+PUSH+Casambi)
MSA063 99 (DALI+PUSH)

Working Voltage	100-240V AC
Working Current	50mA max
Products Size	105x105x60.6mm (Flush Mounting) 105x105x45.6mm (Surface Mounting)
Cut Hole Size	Φ55mm
Maximum Sensing Distance	Radius movement/micro movement/existing 4m @ 3m high installation
Light Sensing Range	MSA227 99 B1: 0-1200 Lux MSA063 99: 50 Lux / Disable
Mounting Height	2.5-4m (Typical Value: 3m)
Detection Technology	24GHz Millimeter Wave radar for human Presence Detection+Photosensitive Detection
Mounting	Flush Mounting/Surface Mounting/European Junction Box
IP Rating	IP54(Surface Mounting)/IP20(Flush Mounting)



Application Diagram



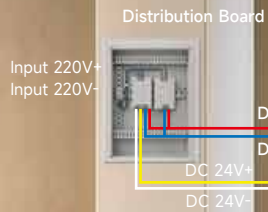
Notes

1. L and N are the AC input terminals, and DALI+ / DALI- are the DALI output terminals. Please ensure the correct wiring sequence during installation.
2. The maximum lead length for the DALI port is 300m, and the maximum port output current is 100mA.

DALI 2.0

DALI-2 (DALI 2.0) is the second-generation standard for the Digital Addressable Lighting Interface, delivering significant enhancements in functionality, system flexibility, and intelligence. DALI-2 core features unified protocols, mandatory certification, and cross-category interoperability, with native support for sensors, control panels, multi-masters, and color temperature control.

Merrytek DALI-2 series sensors connect to DALI controller to interact with DALI-2 luminaires, panels, and other devices. By reporting occupancy/vacancy status to the controller, which then issues dimming commands, they help build a flexible and reliable smart lighting control system. This solution is ideal for major commercial applications including smart buildings, smart hotels, and public facilities.



DALI 2.0

PIR Series



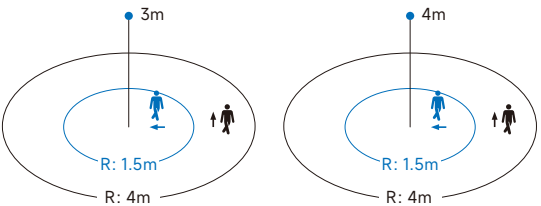
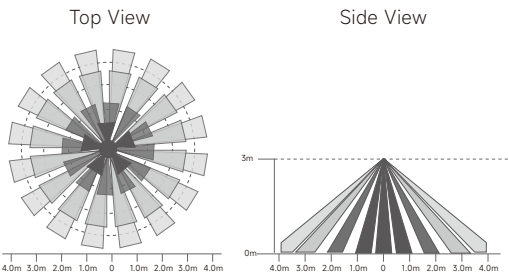
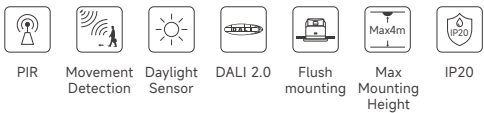
NEW

(SM-P Series)

PIR Low Mounting Motion Detect

MSA070 IR (DALI2.0)

Working Voltage	Powered by DALI bus (9.5-22.5V DC)
Working Current	7mA max
Products Size	$\Phi 34 \times 40 \text{mm}$
Cut Hole Size	$\Phi 35 \text{mm}$
Maximum Sensing Distance	Installation at 3m height, radius 4-5m
Mounting Height	2.5-4m (Typical Value: 3m)
Detection Technology	PIR Motion Detection+ Photosensitive Detection
Mounting	Flush Mounting
IP Rating	IP20

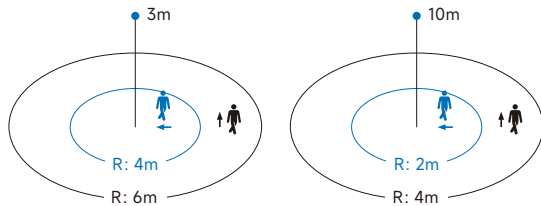
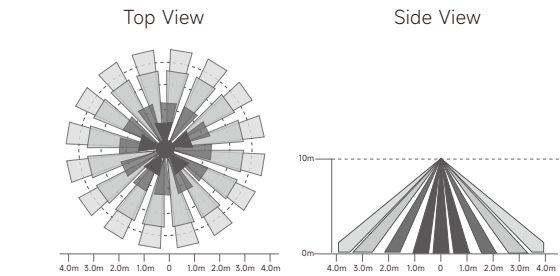
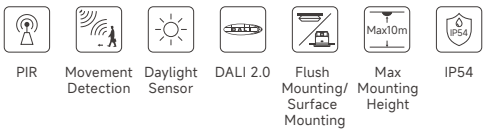


(NH-P Series)

PIR High Mounting Motion Sensing

MSA059D IR (DALI2.0)

Working Voltage	100-240V AC
Working Current	20mA max
Products Size	105x105x80.8mm (Flush Mounting) 105x105x65.8mm (Surface Mounting)
Cut Hole Size	$\Phi 55 \text{mm}$
Maximum Sensing Distance	Installation with a radius of 6m and a height of 8m
Light Sensing Range	MSA227 IR B1: 0-1200 Lux MSA050 IR: 0-150 Lux / Disable
Mounting Height	2.5-10m (Typical Value: 8m)
Detection Technology	PIR Motion Detection+ Daylight Sensor
Mounting	Flush Mounting/Surface Mounting/European Junction Box
IP Rating	IP54 (Surface Mounting) / IP20 (Flush mounting)



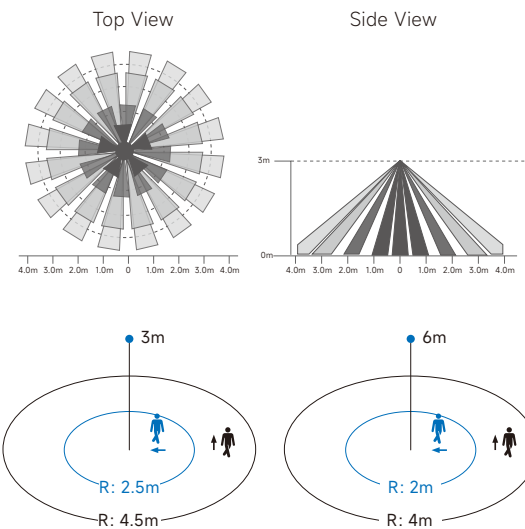
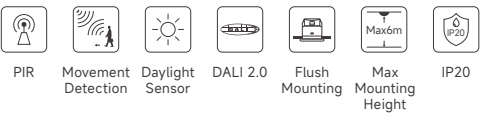


(NH-P Series)

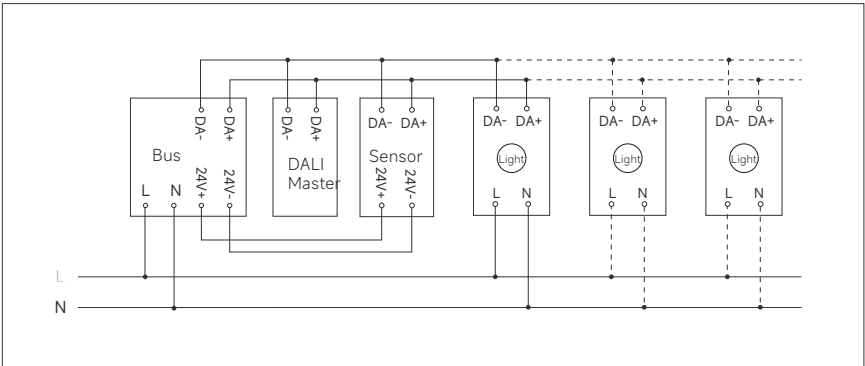
PIR High Mounting Motion Sensing

MSA017D IR (DALI2.0)

Working Voltage	9.5-22.5V DC (Powered by DALI bus)
Working Current	20mA max
Products Size	Φ89x50mm
Cut Hole Size	Φ60mm
Maximum Sensing Distance	Installation with a radius of 4m and a height of 3m
Light Sensing Range	0-65535 Lux
Mounting Height	2-6m (Typical Value: 3m)
Detection Technology	PIR Infrared Pyroelectric+Photosensitive Detection
Mounting	Flush Mounting/European Junction Box (compatible with 86 sided cover)
IP Rating	IP20



Application Diagram



Notes

1. A single DALI bus circuit must not exceed 300 meters, with a maximum limit of 64 DALI LED drivers (power supplies) and 16 sensors per line.
2. The wiring diagram above applies to 24GHz human presence sensors. If DALI bus-powered sensors are used, an external 24V bus power supply is not required.

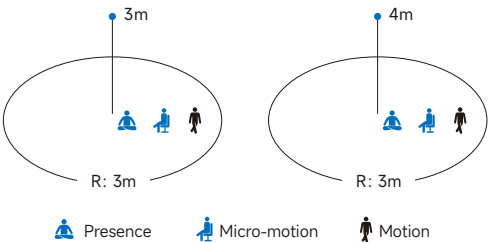
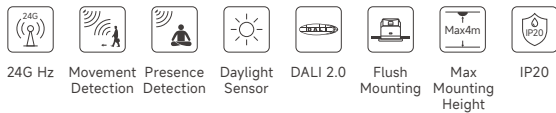


(NH-R Series)

Radar Presence Detection

MSA205 (DALI2.0)

Working Voltage	100-240V AC
Working Current	50mA max
Products Size	Φ105x85mm
Cut Hole Size	Φ75mm
Maximum Sensing Distance	Radius movement/micro movement/existing 3m @ 3m high installation
Lighting Threshold	0-1200 Lux
Mounting Height	2-4m (Typical Value: 3m)
Detection Technology	24GHz Millimeter Wave radar for human Presence Detection+Photosensitive Detection
Mounting	Flush Mounting
IP Rating	IP20

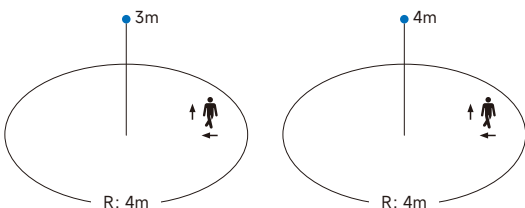
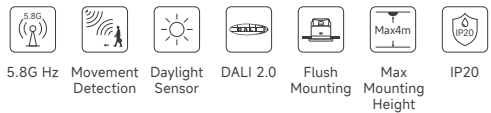


(NP-R Series)

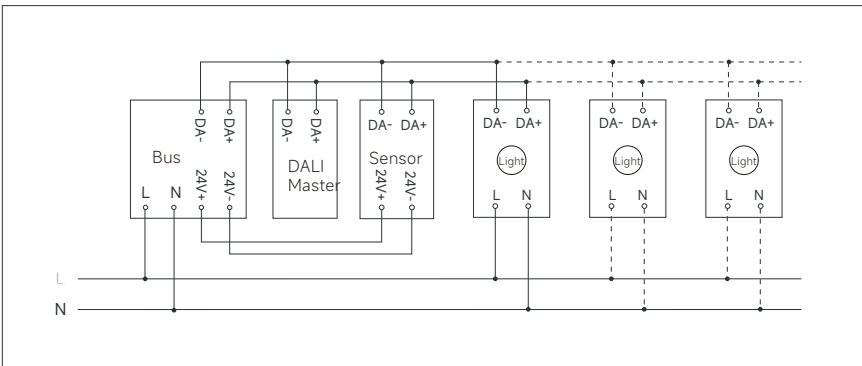
Radar Low Mounting Motion Sensing

MSA055 (DALI2.0)

Working Voltage	9.5-22.5V DC (Powered by DALI bus)
Working Current	10mA max
Products Size	Φ65x49.5mm
Cut Hole Size	Φ55mm
Maximum Sensing Distance	Installation with a radius of 4m and a height of 3m
Lighting Threshold	0-1200 Lux
Mounting Height	2.5-4m (Typical Value: 3m)
Detection Technology	5.8GHz Microwave Human Movement Detection+ Photosensitive Detection
Mounting	Flush Mounting / Surface Mounting (needs to be compatible with surface mounting kit)
IP Rating	IP20



Application Diagram



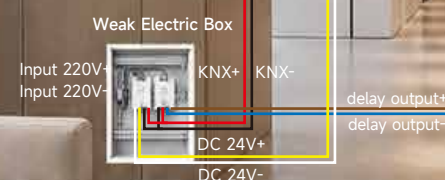
Notes

1. A single DALI bus circuit must not exceed 300 meters, with a maximum limit of 64 DALI LED drivers (power supplies) and 16 sensors per line.
2. The wiring diagram above applies to 24GHz human presence sensors. If DALI bus-powered sensors are used, an external 24V bus power supply is not required.



KNX is the only global standard for open home and building control. Utilizing a unified communication protocol and distributed bus architecture enables seamless integration across sub-systems such as lighting, temperature control, security, and so on.

Merrytek KNX series sensors integrate seamlessly into KNX smart control systems worldwide. By controlling lighting, fresh air, shading, and other sub-systems based on occupancy status, they enable efficient collaboration among cross-brand KNX devices. Delivers a stable and consistent smart experience to customers, suited for large-scale public building projects.



KNX

PIR Series



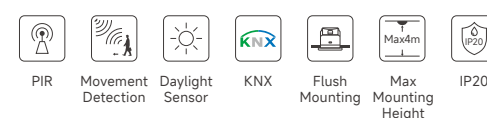
NEW

(SM-P Series)

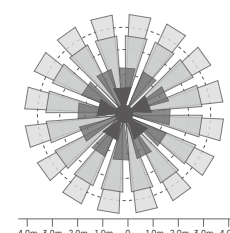
PIR Low Mounting Motion Detect

MSA070K IR (KNX)

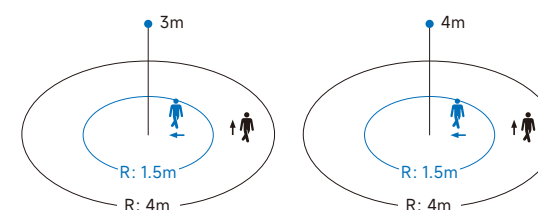
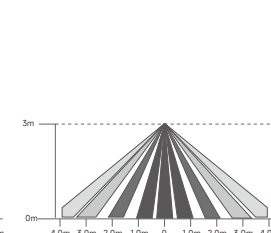
Working Voltage	21-30V DC Powered by KNX bus
Working Current	20mA max
Products Size	$\Phi 34 \times 40 \text{mm}$
Cut Hole Size	$\Phi 35 \text{mm}$
Maximum Sensing Distance	Installation at 3m height, radius 4-5m
Mounting Height	2.5-4m (Typical Value: 3m)
Detection Technology	PIR Motion Detection+ Daylight Sensor
Mounting	Flush Mounting
IP Rating	IP20



Top View



Side View

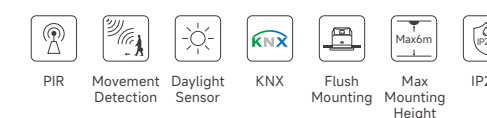


(NH-P Series)

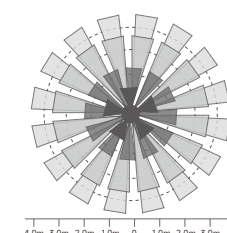
PIR Low Mounting Motion Detect

MSA017K IR (KNX)

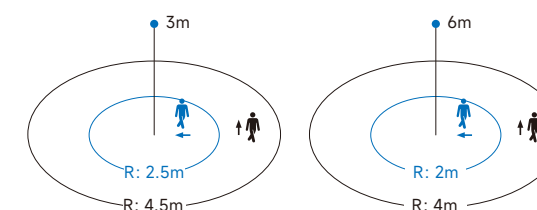
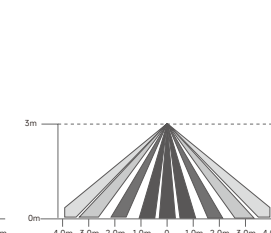
Working Voltage	21-30V DC Powered by KNX bus
Working Current	20mA max
Products Size	$\Phi 89 \times 34 \text{mm}$
Cut Hole Size	$\Phi 60 \text{mm}$
Maximum Sensing Distance	Installation with a radius of 4m and a height of 3m
Lighting Threshold	0-65535 Lux
Mounting Height	2-6m (Typical Value: 3m)
Detection Technology	PIR Motion Detection+ Daylight Sensor
Mounting	Flush Mounting / European Junction Box (compatible with 86 sided cover)
IP Rating	IP20



Top View



Side View



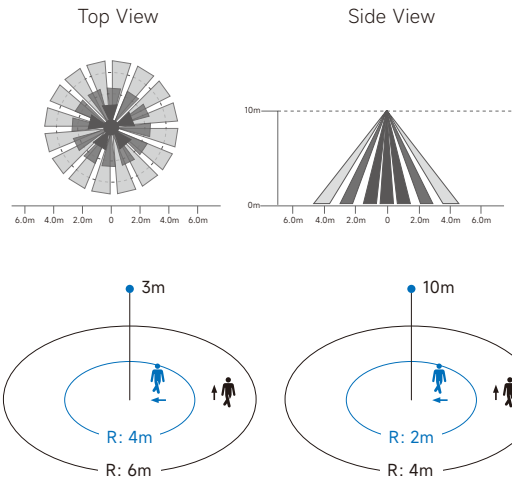
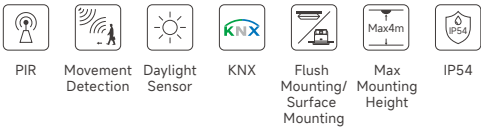


(NH-P Series)

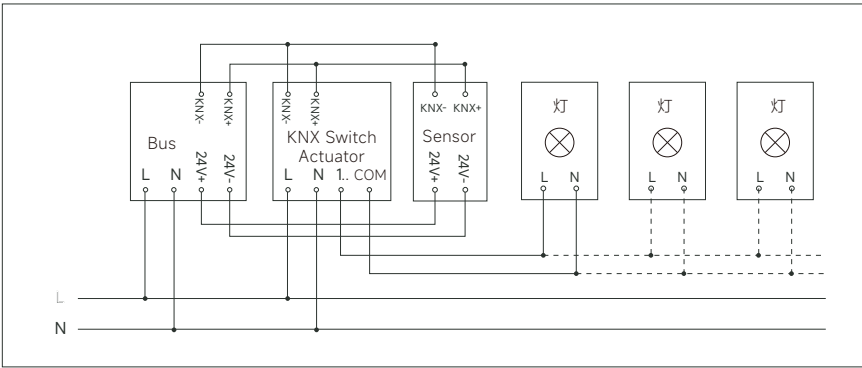
PIR High Mounting Motion Sensing

MSA237K 99 IR (KNX)

Working Voltage	21-30V DC (Powered by KNX bus)
Working Current	20mA max
Products Size	105x105x80.8mm (Flush Mounting)
	105x105x65.8mm (Surface Mounting)
Cut Hole Size	Φ55mm
Maximum Sensing Distance	Installation with a radius of 6m and a height of 8m
Lighting Threshold	2-65000 Lux
Mounting Height	2.5-10m (Typical Value: 8m)
Detection Technology	PIR Infrared Pyroelectric+Photosensitive Detection
Mounting	Flush Mounting/Surface Mounting/European Junction Box
IP Rating	IP54 (Surface Mounting) / IP20 (Flush mounting)



Application Diagram



Notes

1. Daisy-chain wiring topology is recommended for the KNX bus line. Avoid star or tree topologies to ensure stable signal transmission.
2. Standard EIB shielded cable or Cat6 network cable is recommended for KNX bus wiring. The maximum bus cable length should not exceed 400 meters, and a single bus line should connect no more than 12 sensors.
3. The total number of sensors on a single bus must account for the power supply's current-carrying capacity: the total combined current of all KNX devices (including sensors) must not exceed the maximum output current of the KNX power supply.



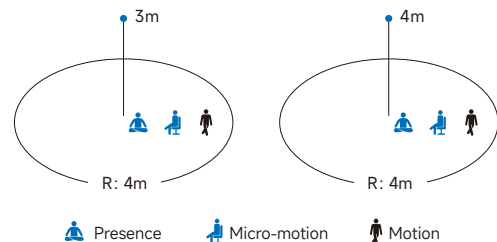
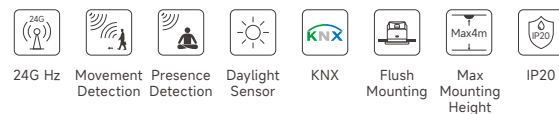
NEW

(NP-R Series)

Radar Presence Detection

MSA237K 99 A (KNX)
MSA237K 99 C (KNX)

Working Voltage	Auxiliary Ports 12-24V DC/KNX Ports 21-30V DC
Working Current	12V: 55±3mA Max 24V: 30±3mA Max
Products Size	Φ63x35mm
Cut Hole Size	Φ50-55mm
Maximum Sensing Distance	Radius movement/micro movement/existing 4m @ 3m high installation
Lighting Threshold	0-65535 Lux
Mounting Height	2-4m (Typical Value: 3m)
Detection Technology	24GHz Millimeter Wave radar for human Presence Detection+Photosensitive Detection
Mounting	Flush Mounting
IP Rating	IP20

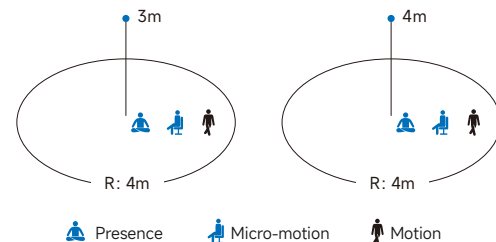
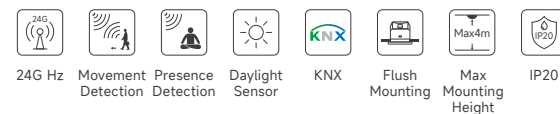


(NH-R Series)

Radar Presence Detection

MSA206K 99 (KNX)

Working Voltage	Auxiliary Ports 12-24V DC/KNX Ports 21-30V DC
Working Current	50mA max
Products Size	Φ89 x34mm
Cut Hole Size	Φ60mm
Maximum Sensing Distance	Radius movement/micro movement/existing 4m @ 3m high installation
Lighting Threshold	0-65535 Lux
Mounting Height	2-4m (Typical Value: 3m)
Detection Technology	24GHz Millimeter Wave radar for human Presence Detection+Photosensitive Detection
Mounting	Flush Mounting/European Junction Box (compatible with 86 sided cover)
IP Rating	IP20

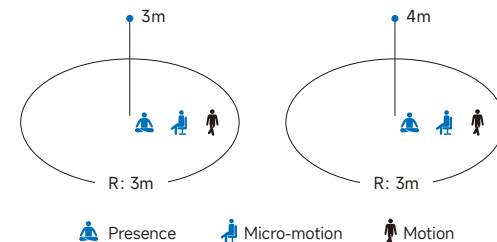
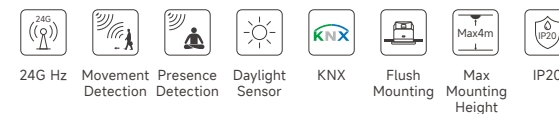


(NH-R Series)

Radar Presence Detection

MSA219K 99 A (KNX)

Working Voltage	Auxiliary Ports 12-24V DC/KNX Ports 21-30V DC
Working Current	50mA max
Products Size	Φ80x45mm
Cut Hole Size	Φ70mm
Maximum Sensing Distance	Radius movement/micro movement/existing 4m @ 3m high installation
Lighting Threshold	0-65535 Lux
Mounting Height	2-4m (Typical Value: 3m)
Detection Technology	24GHz Millimeter Wave radar for human Presence Detection+Photosensitive Detection
Mounting	Flush Mounting
IP Rating	IP20

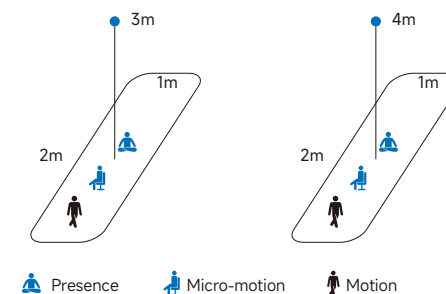
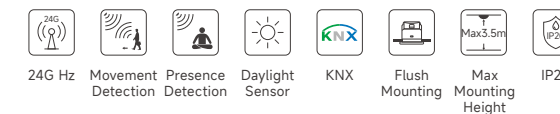


(NH-R Series)

Radar Sleep Presence Sensing

MSA219K 99 B (KNX)

Working Voltage	Auxiliary Ports 12-24V DC/KNX Ports 21-30V DC
Working Current	55mA max
Products Size	Φ89x45mm
Cut Hole Size	Φ60mm
Maximum Sensing Distance	Radius movement/micro movement/with a long side of 2m and a short side of 1m @3m high installation
Lighting Threshold	0-65535 Lux
Mounting Height	2-3.5m (Typical Value: 3m)
Detection Technology	24GHz Millimeter Wave radar for human Presence Detection+Photosensitive Detection
Mounting	Flush Mounting
IP Rating	IP20



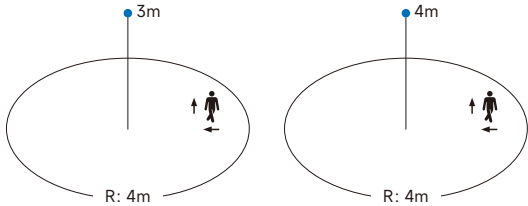
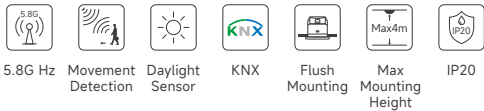


(NP-R Series)

Radar Low Mounting Motion Sensing

MSA237K 99 D (KNX)
MSA237K 99 E (KNX)

Working Voltage	21-30V DC (Powered by KNX bus)
Working Current	30mA max
Products Size	Φ63x35mm
Cut Hole Size	Φ50-55mm
Maximum Sensing Distance	Installation with a radius of 4m and a height of 3m
Light Sensing Range	0-65535 Lux
Mounting Height	2.5-4m (Typical Value: 3m)
Detection Technology	5.8GHz Microwave Human Movement Detection+ Photosensitive Detection
Mounting	Flush Mounting
IP Rating	IP20

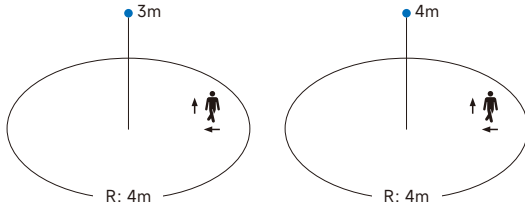


(NH-R Series)

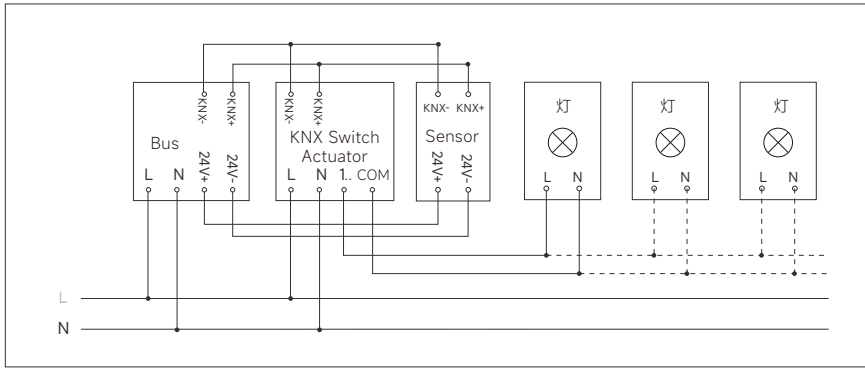
Radar Low Mounting Motion Sensing

MSA056K 99 (KNX)

Working Voltage	21-30V DC (Powered by KNX bus)
Working Current	30mA max
Products Size	Φ89x34mm
Cut Hole Size	Φ60-65mm
Maximum Sensing Distance	Installation with a radius of 4m and a height of 3m
Light Sensing Range	0-65535 Lux
Mounting Height	2.5-4m (Typical Value: 3m)
Detection Technology	5.8GHz Microwave Human Movement Detection+ Photosensitive Detection
Mounting	Flush Mounting/European Junction Box (compatible with 86 sided cover)
IP Rating	IP20



Application Diagram



Notes

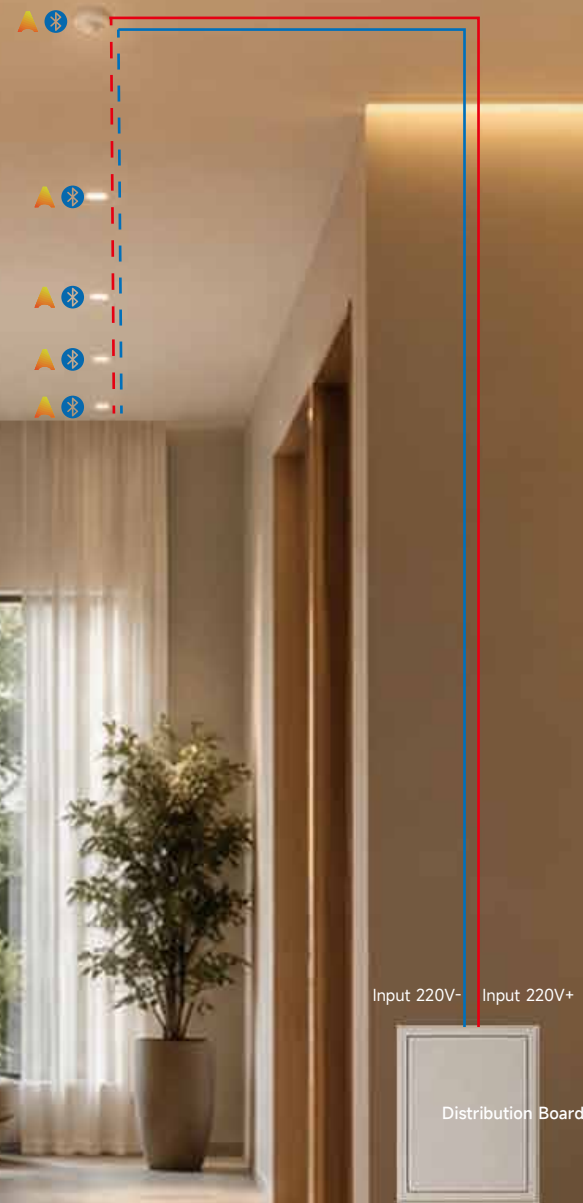
1. Daisy-chain wiring topology is recommended for the KNX bus line. Avoid star or tree topologies to ensure stable signal transmission.
2. Standard EIB shielded cable or Cat6 network cable is recommended for KNX bus wiring. The maximum bus cable length should not exceed 400 meters, and a single bus line should connect no more than 12 sensors.
3. The total number of sensors on a single bus must account for the power supply's current-carrying capacity: the total combined current of all KNX devices (including sensors) must not exceed the maximum output current of the KNX power supply.

Casambi

CASAMBI

The Casambi smart system is a wireless intelligent lighting control system based on Bluetooth Low Energy (BLE) technology. Designed for commercial and residential environments, it provides flexible and scalable lighting solutions, ideal for smart home, light commercial, and retrofit projects.

Merrytek Casambi series sensors seamlessly connect with Casambi luminaires, standard luminaires, Casambi panels, and actuators. Through the Casambi App, users can configure detection parameters and customize lighting automations, effortlessly creating fully automated smart lighting controls.



Casambi

PIR Series

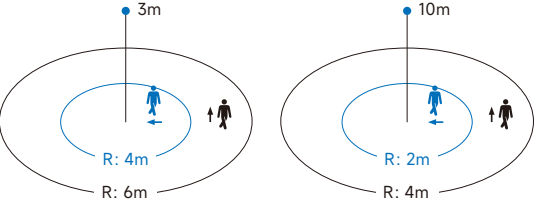
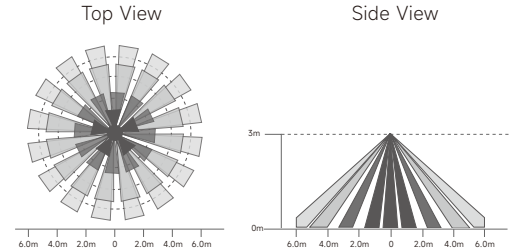
merrytek



PIR High Mounting Motion Sensing

MSA227S IR B1 (ON/OFF+Casambi)
MSA227 IR B1 (DALI+PUSH+Casambi)

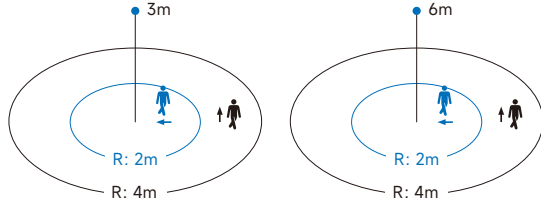
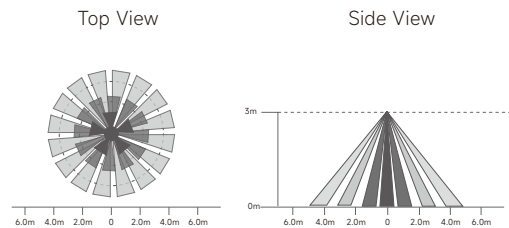
Working Voltage	100-240V AC
Working Current	20mA max
Products Size	105x105x80.8mm (Flush Mounting) 105x105x65.8mm (Surface Mounting)
Cut Hole Size	Φ 55mm
Maximum Sensing Distance	Installation with a radius of 6m and a height of 8m
Lighting Threshold	0-1200 Lux
Mounting Height	2.5-10m (Typical Value: 8m)
Detection Technology	PIR Infrared Pyroelectric+Photosensitive Detection
Mounting	Flush Mounting/Surface Mounting/European Junction Box
IP Rating	IP54 (Surface Mounting) / IP20 (Flush mounting)



PIR Low Mounting Motion Detect

MSA246S IR B1 (ON/OFF+Casambi)
MSA246 IR B1 (DALI+Casambi)

Working Voltage	220-240V AC
Working Current	20mA max
Products Size	Φ 63 (Inner Diameter) x80.5mm Φ 80 (Outer Diameter) x80.5mm
Cut Hole Size	Φ 65mm
Maximum Sensing Distance	Installation at 3m height, radius 4m Installation at 6m height, radius 4m
Mounting Height	2.5-6m (Typical Value: 3m)
Detection Technology	PIR Motion Detection+ Photosensitive Detection
Mounting	Flush Mounting / Surface Mounting (needs to be compatible with surface mounting kit)
IP Rating	IP20



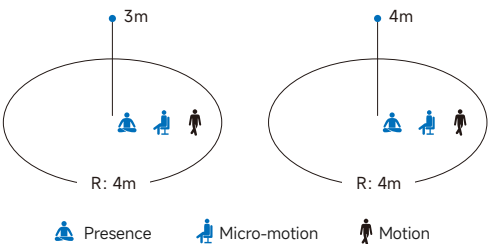
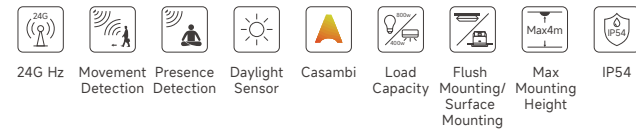


(NH-R Series)

Radar Presence Detection

MSA227S 99 B1 (ON/OFF+Casambi)
MSA227 99 B1 (DALI+PUSH+Casambi)

Working Voltage	220-240V AC
Working Current	50mA
Products Size	105x105x60.6mm (Flush Mounting) 105x105x45.6mm (Surface Mounting)
Cut Hole Size	Φ55mm
Maximum Sensing Distance	Radius movement/micro movement/existing 4m @ 3m high installation
Light Sensing Range	0-1200 Lux
Mounting Height	2.5-4m (Typical Value: 3m)
Detection Technology	24GHz Millimeter Wave radar for human Presence Detection+Photosensitive Detection
Mounting	Flush Mounting/Surface Mounting/European Junction Box
IP Rating	IP54(Surface Mounting)/IP20(Flush Mounting)

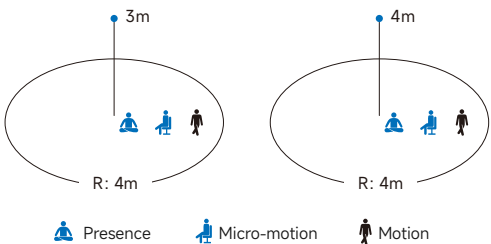
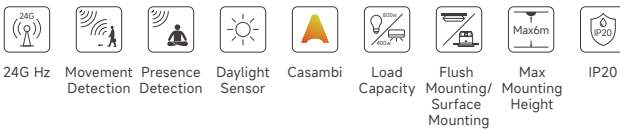


(SP-R Series)

Radar Presence Detection

MSA246S B1 (ON/OFF+DALI+Casambi)

Working Voltage	220-240V AC
Working Current	20mA max
Products Size	Φ63 (Inner Diameter) x80.5mm Φ80 (Outer Diameter) x80.5mm
Cut Hole Size	Φ65mm
Maximum Sensing Distance	Installation at 3m height, radius 4m Installation at 6m height, radius 4m
Mounting Height	2.5-6m (Typical Value: 3m)
Detection Technology	24GHz Millimeter Wave radar for human Presence Detection+Photosensitive Detection
Mounting	Flush Mounting / Surface Mounting(needs to be compatible with surface mounting kit)
IP Rating	IP20

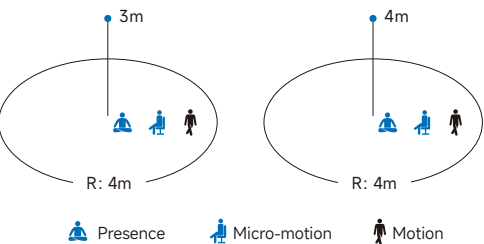
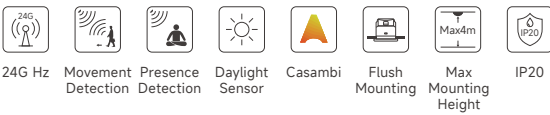


(NH-R Series)

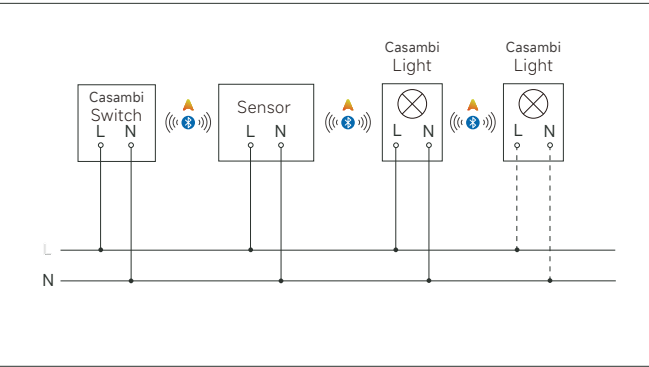
Radar Presence Detection

MSA211 B (Casambi)

Working Voltage	100-240V AC
Working Current	50mA max
Products Size	Φ90x80mm
Cut Hole Size	Φ75mm
Maximum Sensing Distance	Radius movement/micro movement/existing 4m @ 3m high installation
Light Sensing Range	0-65535 Lux
Mounting Height	2.5-4m (Typical Value: 3m)
Detection Technology	24GHz Millimeter Wave radar for human Presence Detection+Photosensitive Detection
Mounting	Flush Mounting
IP Rating	IP20



Application Diagram



Notes

1. L and N are the AC input terminals. Please ensure the correct wiring sequence during installation.

RS485



RS485 is a mainstream industrial standard for differential serial communication. Designed for long-distance transmission, multi-device networking, and strong anti-interference performance, it is commonly paired with Modbus or customized protocols and widely applied in industrial control and smart lighting.

Merrytek RS485 series products support RS485 bus communication. Powered by Merrytek's proprietary antiinterference algorithms, they deliver stable human motion and presence detection signals, suitable for smart building projects in hotels, schools, and offices utilizing the RS485 protocol.



RS485 PIR Series

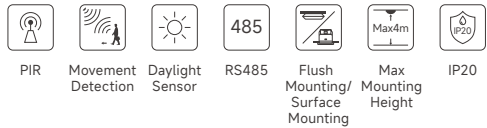


(NM-P Series)

PIR Low Mounting Motion Detect

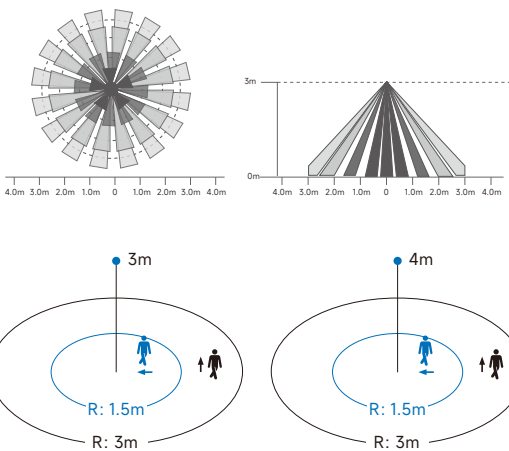
MSA236D IR 485 (RS485)

Working Voltage	12-24V DC
Working Current	20mA max
Products Size	$\Phi 58 \times 34.5 \text{mm}$
Cut Hole Size	$\Phi 45 \text{mm}$
Maximum Sensing Distance	Installation with a radius of 3m and a height of 3m
Light Sensing Range	0-1200 Lux (Switchable Daylight Sensor Mode Through Protocol)
Mounting Height	2.5-4m (Typical Value: 3m)
Detection Technology	PIR Motion Detection+ Daylight Sensor
Mounting	Flush Mounting / Surface Mounting (needs to be compatible with surface mounting kit)
IP Rating	IP20



Top View

Side View

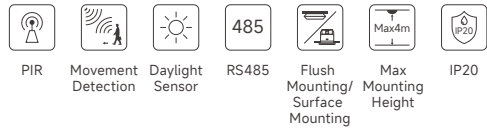


(NM-P Series)

PIR Low Mounting Motion Detect

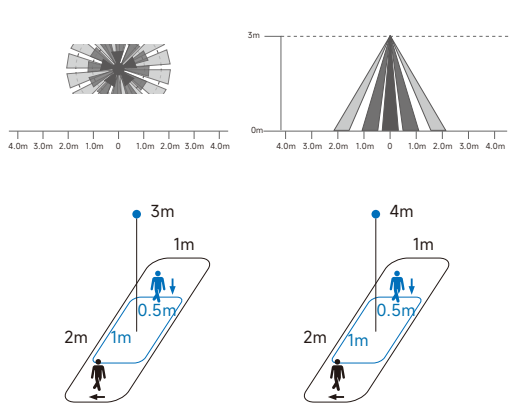
MSA238D IR 485 (RS485)

Working Voltage	12-24V DC
Working Current	20mA max
Products Size	$\Phi 58 \times 34.5 \text{mm}$
Cut Hole Size	$\Phi 45 \text{mm}$
Maximum Sensing Distance	Installation with a radius of 2m for the long side and 1m for the short side at a height of 3m
Light Sensing Range	0-1200 Lux (Switchable Daylight Sensor Mode Through Protocol)
Mounting Height	2.5-4m (Typical Value: 3m)
Detection Technology	PIR Motion Detection+ Daylight Sensor
Mounting	Flush Mounting / Surface Mounting(needs to be compatible with surface mounting kit)
IP Rating	IP20



Top View

Side View



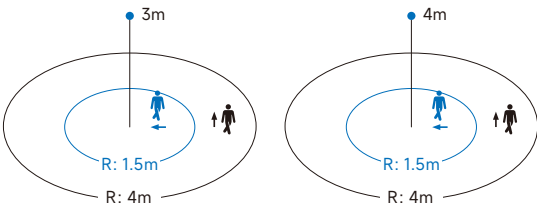
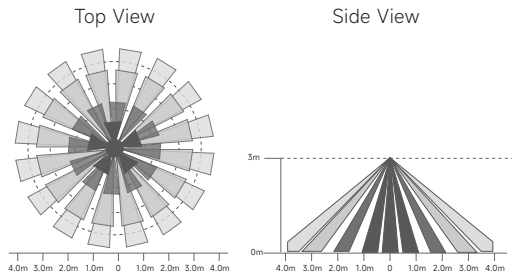
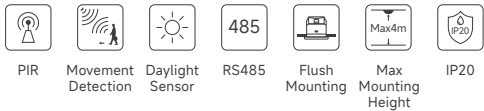


(SM-P Series)

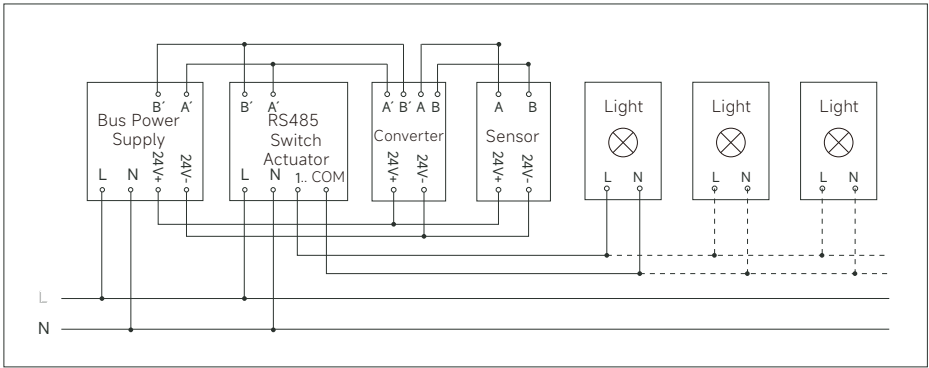
PIR Low Mounting Motion Detect

MSA070D IR 485 (RS485)

Working Voltage	12-24V DC
Working Current	20mA max
Products Size	Φ34x40mm
Cut Hole Size	Φ35mm
Maximum Sensing Distance	Installation at 3m height, radius 4-5m
Mounting Height	2.5-4m (Typical Value: 3m)
Detection Technology	PIR Motion Detection+ Daylight Sensor
Mounting	Flush Mounting
IP Rating	IP20



Application Diagram



Notes

1. Daisy-chain wiring topology is recommended for RS485 bus wiring. Avoid star or tree topologies to ensure stable signal transmission.
2. Recommended 0.5 mm² 4-core shielded cable or Cat6 network cable. The total bus cable length should not exceed 300 meters, and a single bus line should connect no more than 12 sensors.
3. This sensor does not include termination resistors. Pay attention to impedance matching when connecting to the bus system. It is generally recommended to use two 120-ohm resistors as termination resistors for the RS485 bus.

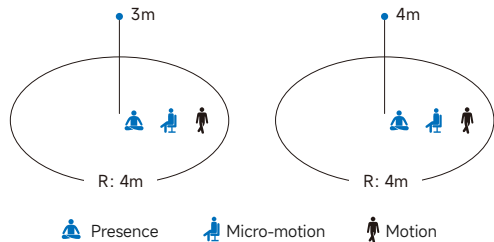
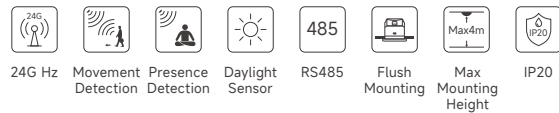


(NH-P Series)

Radar Presence Detection

MSA237D 99 485 (RS485)

Working Voltage	12-24V DC
Working Current	50mA max
Products Size	Φ63x35mm
Cut Hole Size	Φ50-55mm
Maximum Sensing Distance	Radius movement/micro movement/existing 4m @ 3m high installation
Light Sensing Range	0-1200 Lux
Mounting Height	2-4m (Typical Value: 3m)
Detection Technology	24GHz Millimeter Wave radar for human Presence Detection+Photosensitive Detection
Mounting	Flush Mounting
IP Rating	IP20

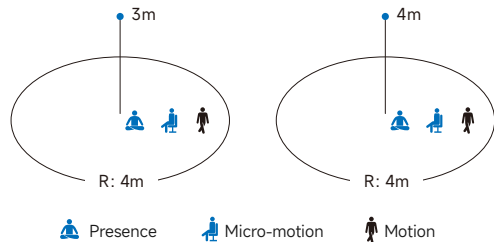
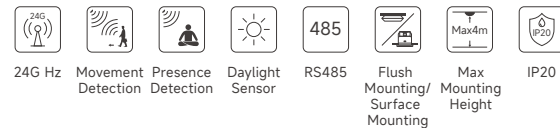


(SH-P Series)

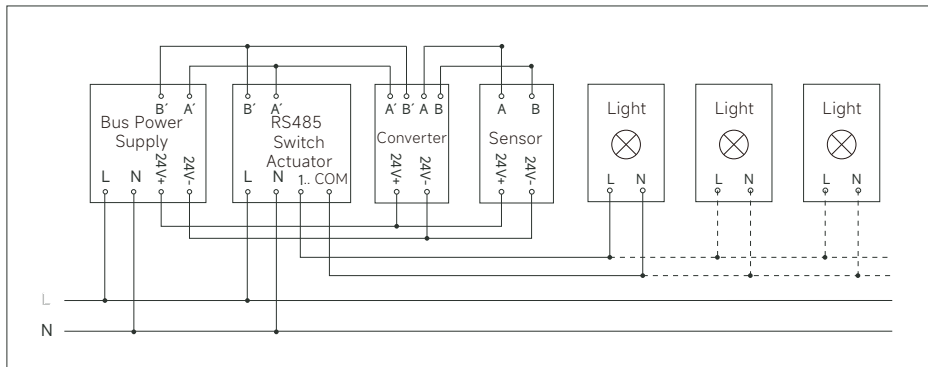
Radar Presence Detection

MSA203D 485 (RS485)

Working Voltage	12-24V DC
Working Current	50mA max
Products Size	Φ65x51.5mm
Cut Hole Size	Φ45mm
Maximum Sensing Distance	Radius movement/micro movement/existing 4m @ 3m high installation
Light Sensing Range	0-1200 Lux
Mounting Height	2-4m (Typical Value: 3m)
Detection Technology	24GHz Millimeter Wave radar for human Presence Detection+Photosensitive Detection
Mounting	Flush Mounting / Surface Mounting (needs to be compatible with surface mounting kit)
IP Rating	IP20



Application Diagram



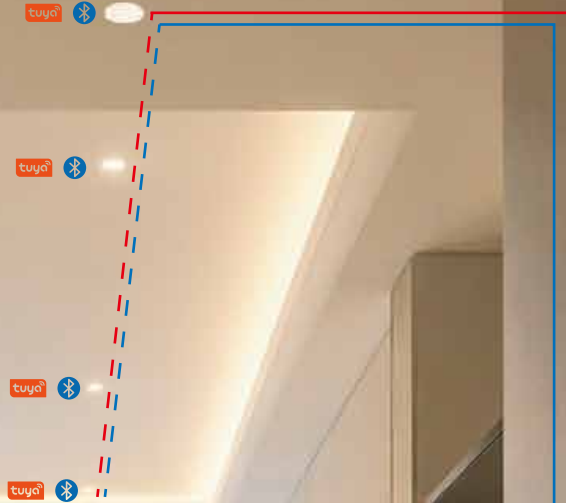
Notes

1. Daisy-chain wiring topology is recommended for RS485 bus wiring. Avoid star or tree topologies to ensure stable signal transmission.
2. Recommended 0.5 mm² 4-core shielded cable or Cat6 network cable. The total bus cable length should not exceed 300 meters, and a single bus line should connect no more than 12 sensors.
3. This sensor does not include termination resistors. Pay attention to impedance matching when connecting to the bus system. It is generally recommended to use two 120-ohm resistors as termination resistors for the RS485 bus.



Tuya Smart Ecosystem Protocol is a full-stack protocol covering device connectivity, cloud communication, local networking, and third-party interoperability. With a self-developed private protocol and global standard protocols (Matter, Zigbee, Bluetooth, Thread), it enables fast onboarding, Cross-brand collaboration, and fullscenario intelligence.

Merrytek Tuya series sensors primarily utilize Tuya Zigbee communication. They allow sensor parameter configuration and remote control via the Tuya App, offering flexible, visual operation—ideal for smart hospitality and smart home projects.



Input 220V+ Input 220V+

Distribution Board

Tuya

Radar Series



NEW

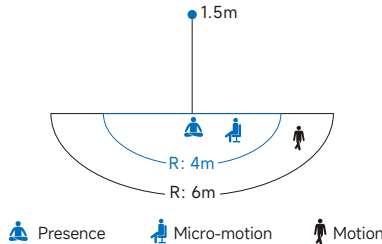
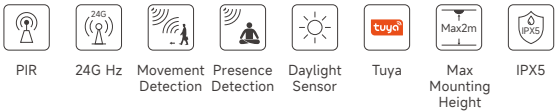


(BP-R Series)

Low-Power Presence Detection

MSA07 (Tuya ZigBee)

Working Voltage	3V (Lithium manganese CR2477 button cell battery)
Working Current	200uA max
Products Size	$\Phi 39 \times 49 \text{mm}$ (Including base)
Product Weight	50g (Including base)
Maximum Sensing Distance	Motion detection up to 6 meters and presence detection up to 4 meters
Light Sensing Range	1-1000lux
Mounting Height	1.5-2m
Detection Technology	PIR Motion Detection+24GHz mmWave radar+ Photosensitive Detection
Mounting	Wall Side Mounting
IP Rating	IPX5



NEW

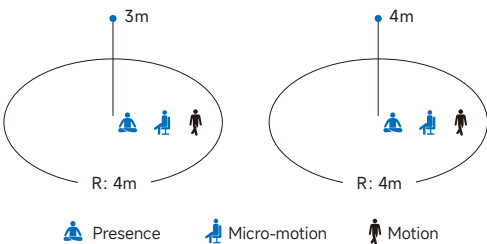
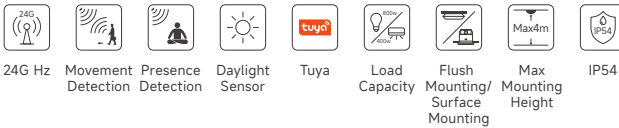


(NH-R Series)

Radar Presence Detection

MSA050S 99 Z (ON/OFF+Tuya Zigbee)

Working Voltage	100-240Vac
Working Current	50mA max
Products Size	105x105x60.6mm (Flush Mounting) 105x105x45.6mm (Surface Mounting)
Cut Hole Size	$\Phi 55 \text{mm}$
Maximum Sensing Distance	Radius movement/micro movement/existing 3.5m @ 3m high installation
Light Sensing Range	0-1200 Lux
Mounting Height	2.5-4m (Typical Value: 3m)
Detection Technology	24GHz Millimeter Wave radar for human Presence Detection+Photosensitive Detection
Mounting	Flush Mounting / Surface Mounting
IP Rating	IP54(Surface Mounting)/IP20 (Flush Mounting)



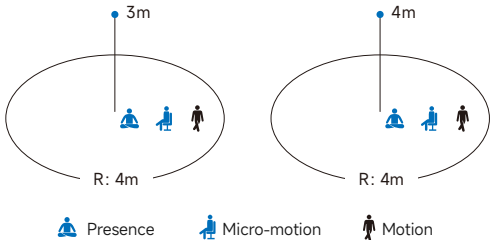
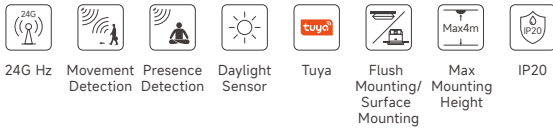


(NP-R Series)

Radar Presence Detection

MSA201 B4 (TuyaBLE)
MSA201 Z (TuyaZigbee)

Working Voltage	100-240V AC
Working Current	50mA max
Products Size	$\Phi 65 \times 49.5\text{mm}$
Cut Hole Size	$\Phi 55\text{mm}$
Maximum Sensing Distance	Radius movement/micro movement/existing 4m @ 3m high installation
Light Sensing Range	0-1200 Lux
Mounting Height	2-4m (Typical Value: 3m)
Detection Technology	24GHz Millimeter Wave radar for human Presence Detection+Photosensitive Detection
Mounting	Flush Mounting / Surface Mounting (needs to be compatible with surface mounting kit)
IP Rating	IP20

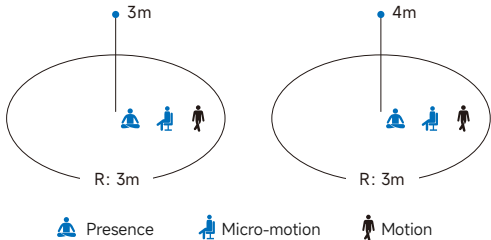


(NH-R Series)

Radar Presence Detection

MSA219 Z1 (TuyaZigbee)

Working Voltage	100-240V AC
Working Current	50mA max
Products Size	$\Phi 85 \times 43.5\text{mm}$
Cut Hole Size	$\Phi 70\text{mm}$
Maximum Sensing Distance	Radius movement/micro movement/existing 3m @ 3m high installation
Light Sensing Range	0-1200 Lux
Mounting Height	2-4m (Typical Value: 3m)
Detection Technology	24GHz Millimeter Wave radar for human Presence Detection+Photosensitive Detection
Mounting	Flush Mounting
IP Rating	IP20

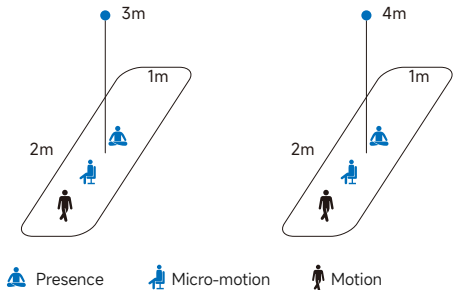
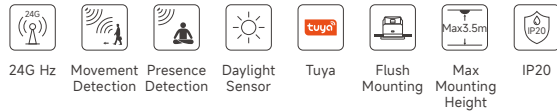


(NH-R Series)

Radar Sleep Presence Sensing

MSA219 Z (TuyaZigbee)

Working Voltage	100-240Vac
Working Current	50mA max
Products Size	$\phi 80 \times 66.5\text{mm}$
Cut Hole Size	$\phi 70\text{mm}$
Maximum Sensing Distance	Radius movement/micro movement/with a long side of 2m and a short side of 1m @3m high installation
Light Sensing Range	0-1200 Lux
Mounting Height	2-3.5m (Typical Value: 2.5m)
Detection Technology	24GHz Millimeter Wave radar for human Presence Detection+Photosensitive Detection
Mounting	Flush Mounting
IP Rating	IP20

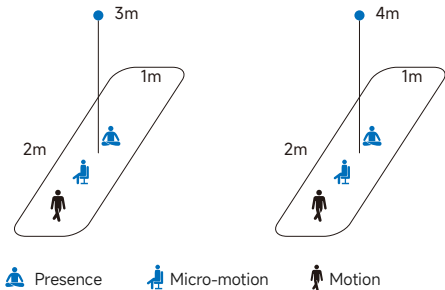
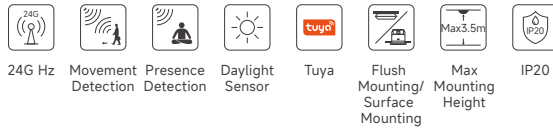


(NP-R Series)

Radar Sleep Presence Sensing

MSA220 Z (TuyaZigbee)

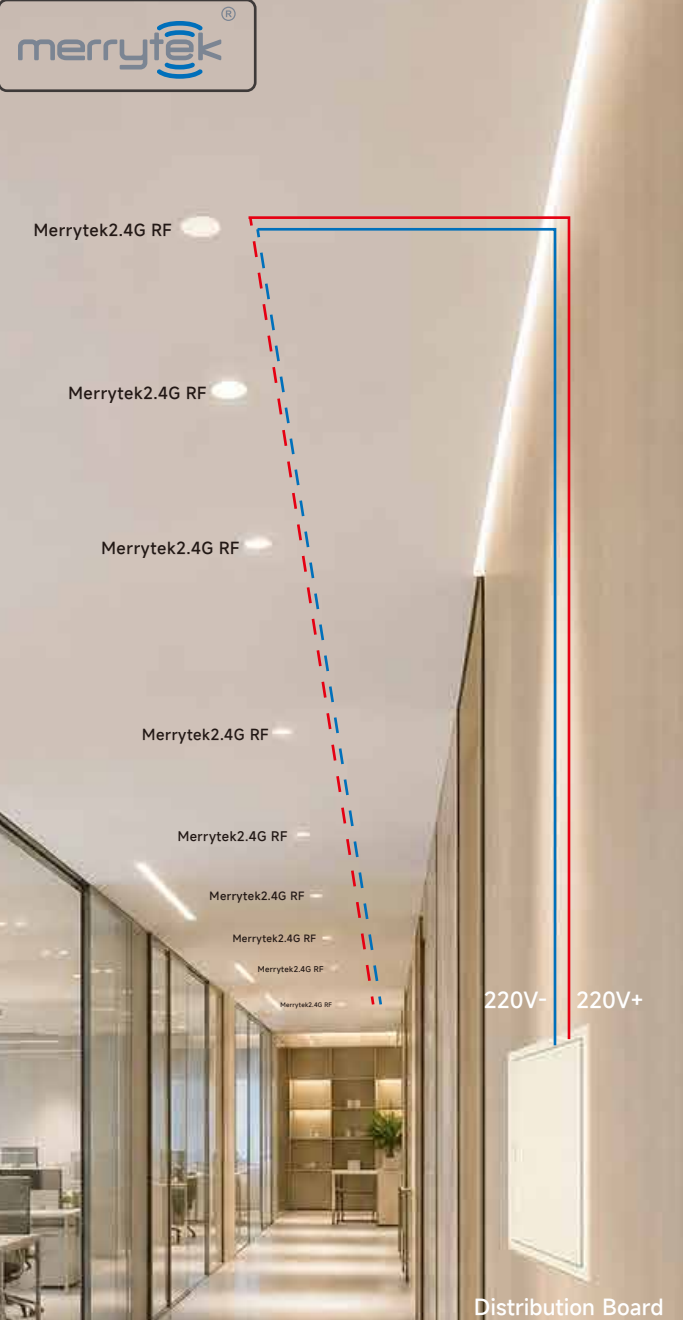
Working Voltage	100-240Vac 50Hz/60Hz
Working Current	50mA max
Products Size	$\phi 65 \times 49.5\text{mm}$
Cut Hole Size	$\phi 55\text{mm}$
Maximum Sensing Distance	Radius movement/micro movement/with a long side of 2m and a short side of 1m @3m high installation
Lighting Threshold	0-1200 Lux
Mounting Height	2-3.5m (Typical Value: 3m)
Detection Technology	24GHz Millimeter Wave radar for human Presence Detection+Photosensitive Detection
Mounting	Flush Mounting
IP Rating	IP20



Merrytek 2.4G RF

2.4GHz RF wireless networking technology is a highly mature transmission solution. Favored by users, it offers key advantages including cable-free installation, stable zero-disconnection performance, low maintenance costs, and flexible scalability.

Merrytek's 2.4GHz RF wireless networking series features proprietary built-in 2.4GHz RF communication modules, enabling seamless inter-device communication and easy mesh setup via remote control. It delivers a highly efficient, convenient, lightweight, and localized automation experience for smart applications.



Merrytek2.4G RF Radar Series

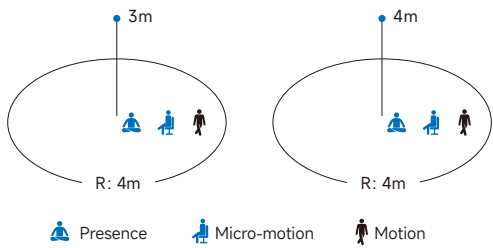
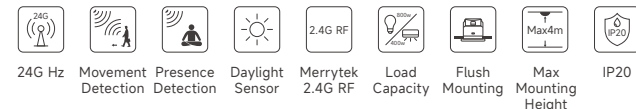


(SW-P Series)

Radar Presence Detection

MSA219 RF A (2.4G RF+ON/OFF)

Working Voltage	100-240V AC
Working Current	50mA max
Products Size	Φ80x66.5mm
Cut Hole Size	Φ55mm
Maximum Sensing Distance	Radius movement/micro movement/ existing 4m@ 3m high installation
Light Sensing Range	5-150 Lux / Disable
Mounting Height	2-4m (Typical Value: 3m)
Detection Technology	24GHz millimeter wave radar for human presencedetection+Photosensitive Detection
Mounting	Flush Mounting
IP Rating	IP20

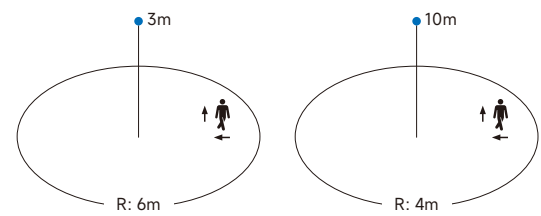
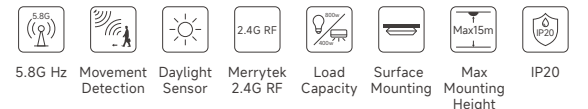


(NH-R Series)

Radar High Mounting Motion Sensing

MSA224 RF (2.4G RF+ON/OFF)

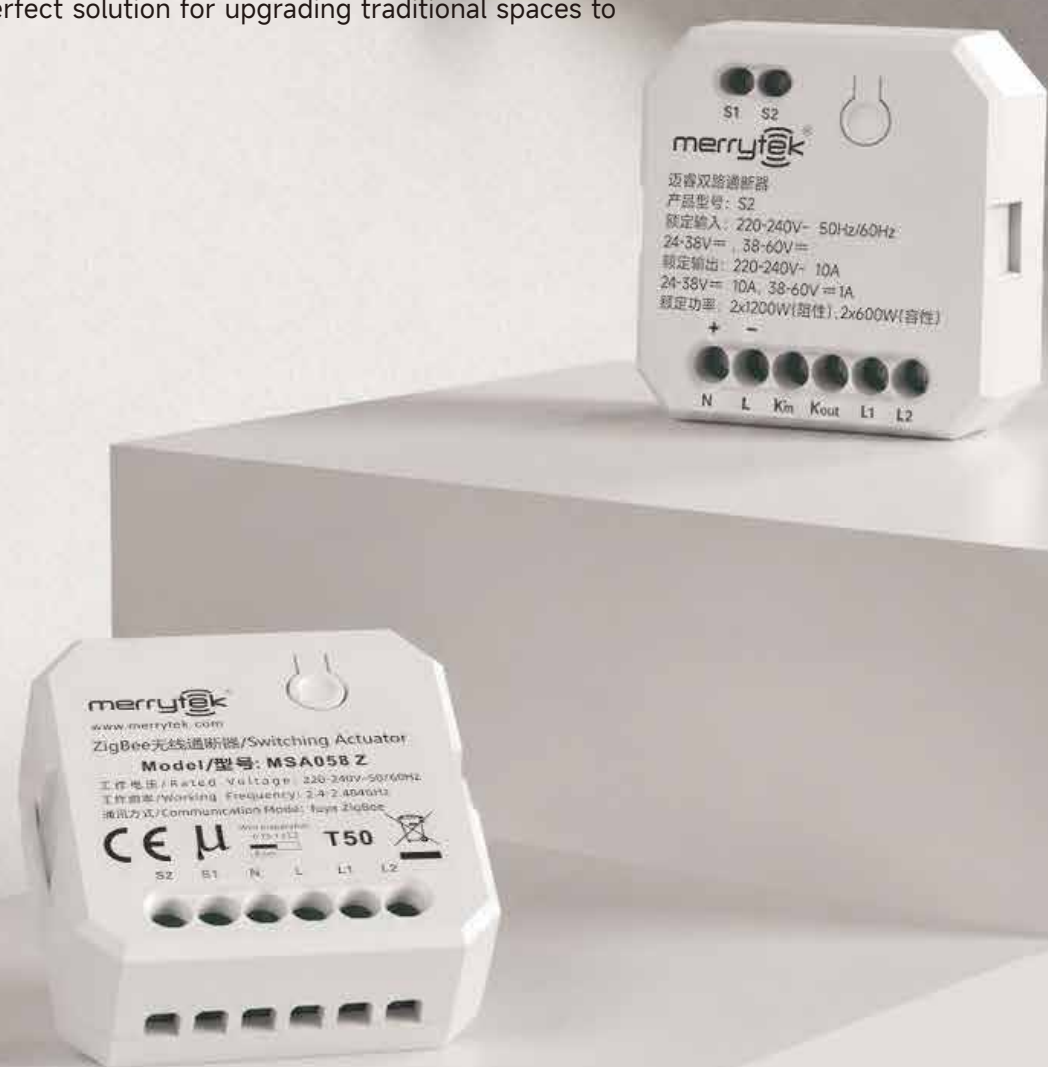
Working Voltage	100-240V AC
Working Current	50mA max
Products Size	110x110x32mm
Maximum Sensing Distance	Installation at 10m height, radius 4m
Lighting Threshold	5-150 Lux / Disable
Mounting Height	3-15m (Typical Value: 3m/12m)
Detection Technology	5.8GHz Microwave Human Movement Detection+Photosensitive Detection
Mounting	Surface Mounting
IP Rating	IP20



OFF 0-10V Dry Contact DALI DALI 2.0 KNX Casambi RS485 TuYa Merrytek 2.4G RF

Intelligent Switching Actuator Series

Merrytek smart switch modules can be connected externally to traditional devices, traditional switches, or self-resetting switches. Featuring built-in Tuya, Mi Home, or Merrytek 2.4G RF smart communication modules, they enable rapid integration with smart ecosystems like Tuya and Mi Home, as well as Merrytek's proprietary 2.4G RF mesh communication. This enables local control, remote app control, timer scheduling, and scene automation, making it the perfect solution for upgrading traditional spaces to smart control.



Intelligent switching actuator series



Smart Switch

MSA058 Z (Tuya)

Working Voltage	220-240V AC
Products Size	46x48x22mm
Output Signal	Two-way ON /OFF
Maximum Load Power	Single channel 600W capacitive/ 1200W resistive
Mounting	Intelligent switch (Tuya)
IP Rating	IP20



Smart Switch

MSA058 RF (Merrytek2.4G RF)

Working Voltage	220-240V AC
Products Size	46x48x22mm
Output Signal	Two-way ON /OFF
Maximum Load Power	Single channel 600W capacitive/ 1200W resistive
Mounting	Intelligent switch (Merrytek 2.4G RF)
IP Rating	IP20

Structural Accessories

Merrytek provides a variety of structural accessories, including surface-mounting boxes, extension rings, and 86-type faceplates, offering versatile sensor installation options to suit mainstream application scenarios and meet diverse customer needs.



Structural accessories



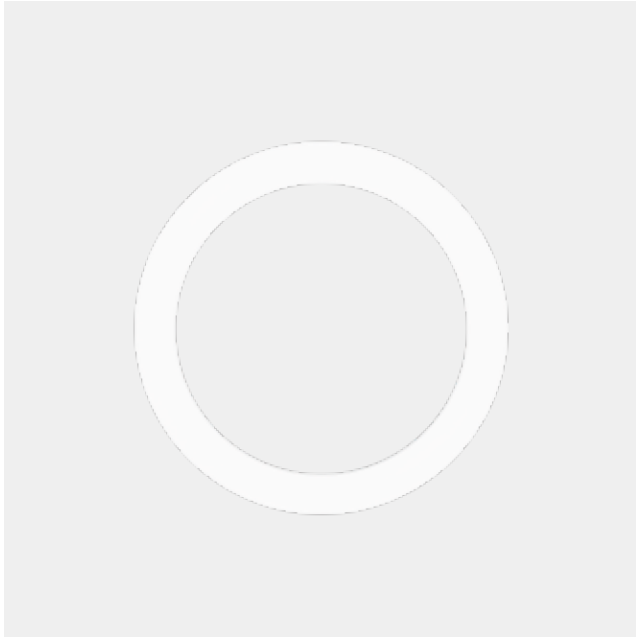
45mm/55mm Exposed Sleeve



65mm Exposed Sleeve



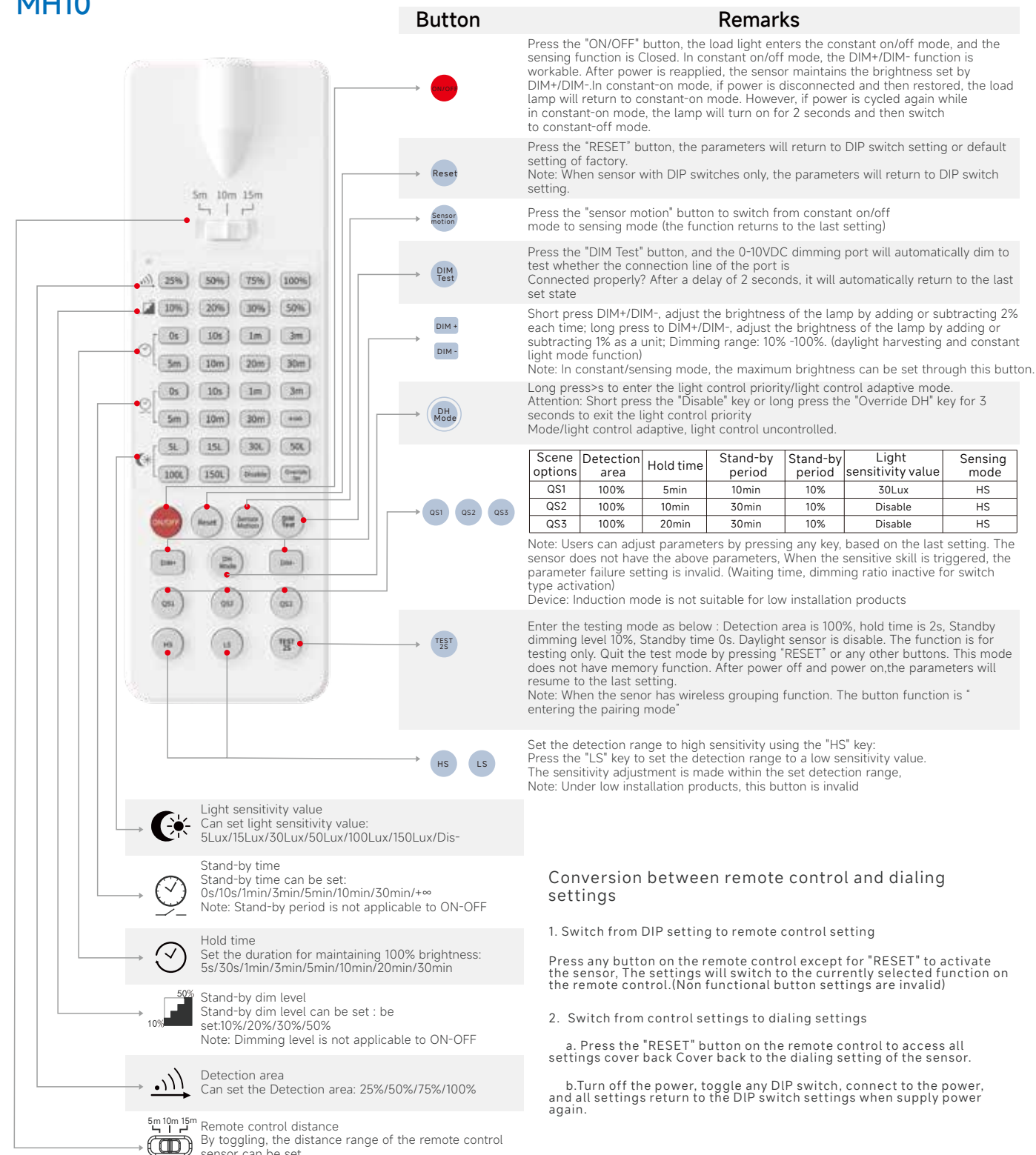
45mm to 55mm Compensation Ring



86 Sided Cover

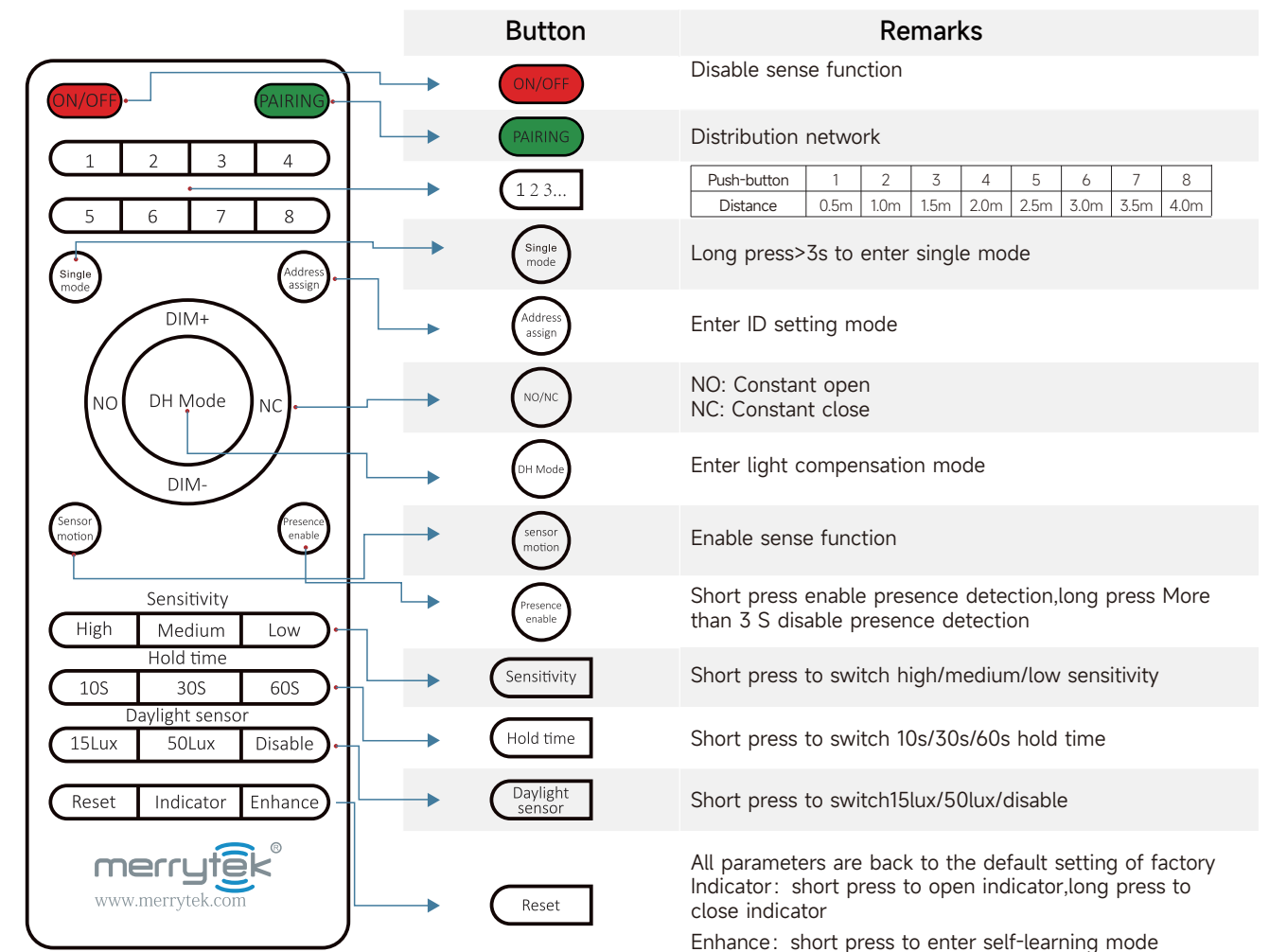


MH10



Note: In combination with different products,
The button functions of the remote control may vary, please refer to the remote control instructions on the
specific product acceptance certificate for accuracy!

MH18



Smart hotel series



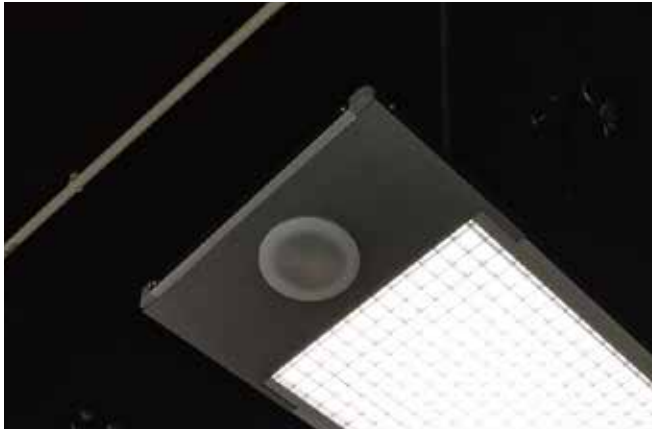
Smart office series



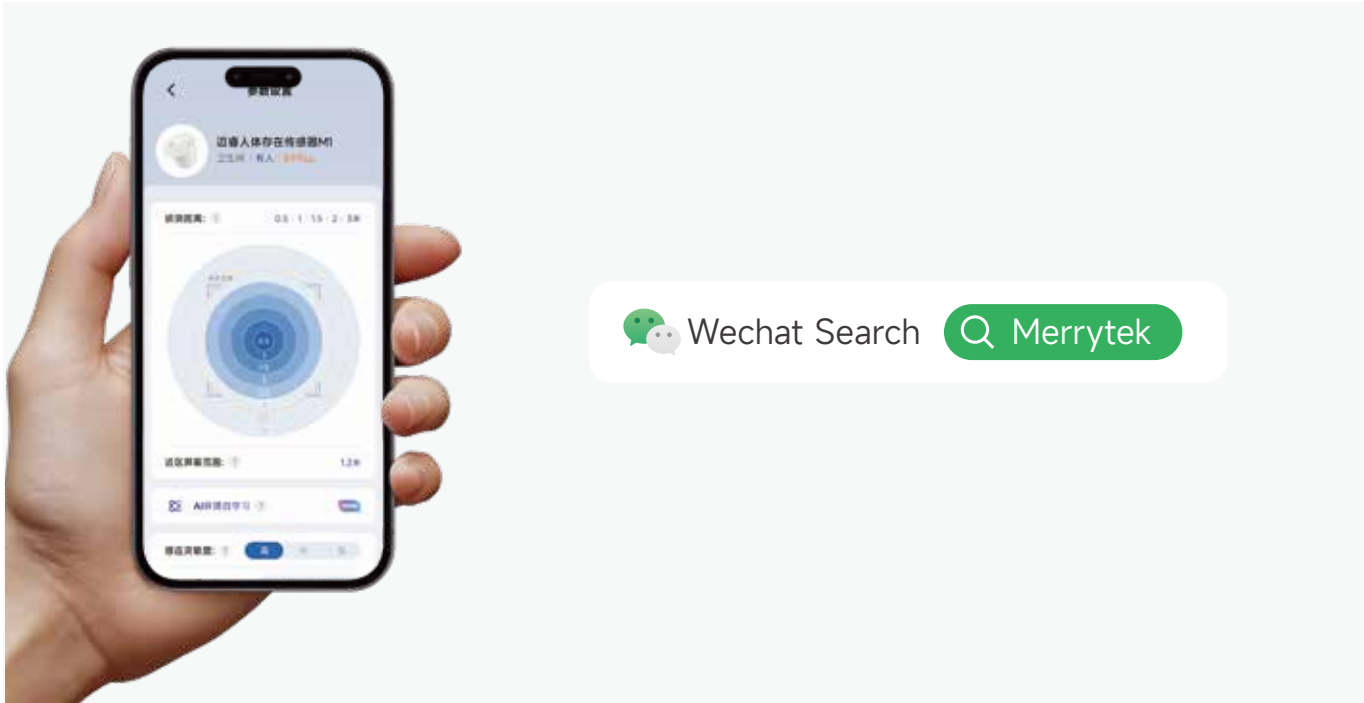
Smart home series



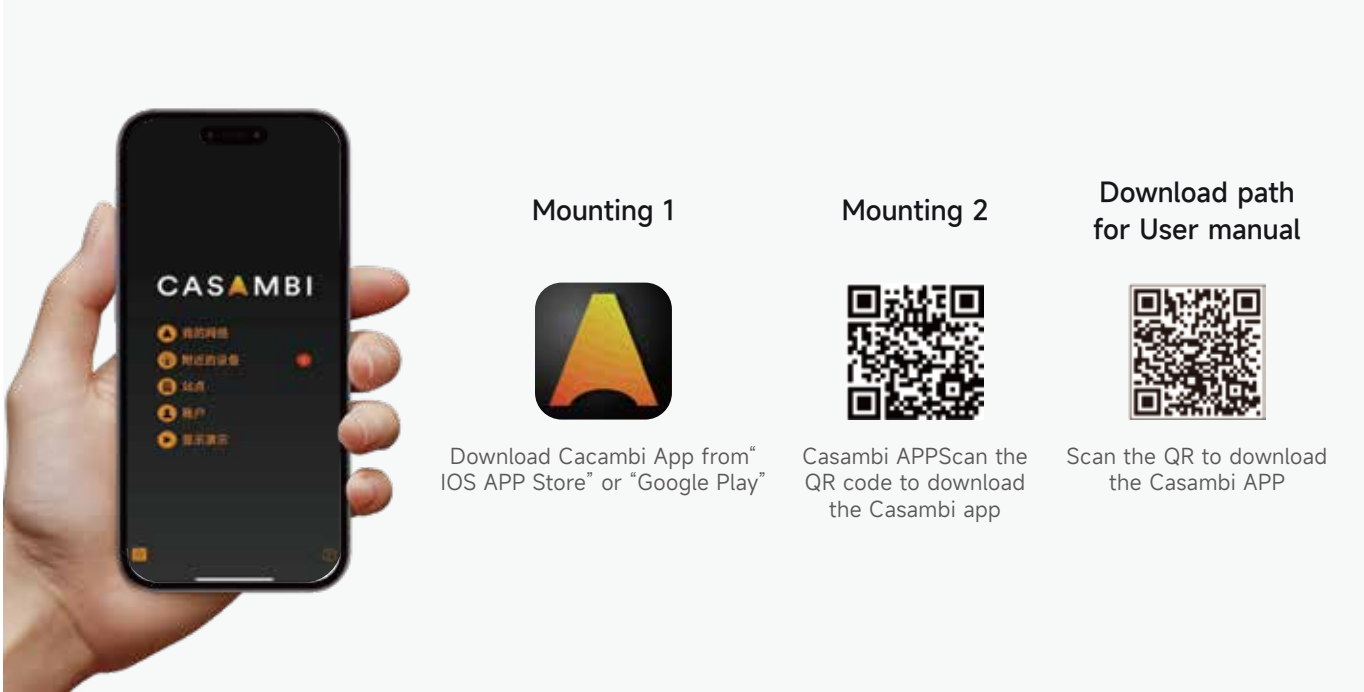
Smart campus series



Merrytek Mini App



Casambi APP



Easy systematic Mini App

