

# Specification

Product Name: 24GHz Large-space presence sensor (Casambi+DALI version)

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Product Model: MSA227 99 B1

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Product Version: V1.0

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Versions	Release Date	Record	Publishing
V1.0	2024.10.10	Initial release	Jacky

## 【Product Description】

MSA227 99 B1 is a 24GHz radar sensor based on Merrytek patented orthogonal antenna. Its antenna has high gain and wide detection range and can connect to Casambi ecosystem. Combined with Merrytek's unique software algorithm and FMCW modulation, it can accurately detect micro movements brought by human in almost all indoor spaces and provide fast and accurate front-end sensing input for smart home, smart hotel, smart office and other scenes. Meanwhile it also has one channel DALI dimming terminal output and one channel push control terminal output.

## 【Product Feature】

- Exclusive Merrytek Lifebeing Presence Detection
- FMCW modulation technology applied to detect micro movement brought by breathing
- Germany RF technology applied for 5-year guarantee assurance
- Connect to casambi BLE ecosystem
- Accurate motion detection with one channel DALI dimming output and casambi communication
- Support one channel PUSH on/off and dimming control
- Daylight Sensor Available
- 24Ghz ISM Band Millimeter Wave Radar technology
- Major/Minor/Micro Motion detection diameter: 6-8m Max
- Major/Minor/Micro Motion detection range are highly coincide
- Round radiation. Effectively managing a whole space by a single sensor
- Absence switch to Presence within 0.5S
- Presence switch to Absence no less than 15S
- Flush mounting and Surface mounting installation available
- Sensor parameter adjustable by casambi app
- Sensing function based on millimeter wave radar technology
- Low RF power output. No harm to human health
- Not affected by temperature, humidity, noise, airflow, dust, light and other environments



## 【Dimension】

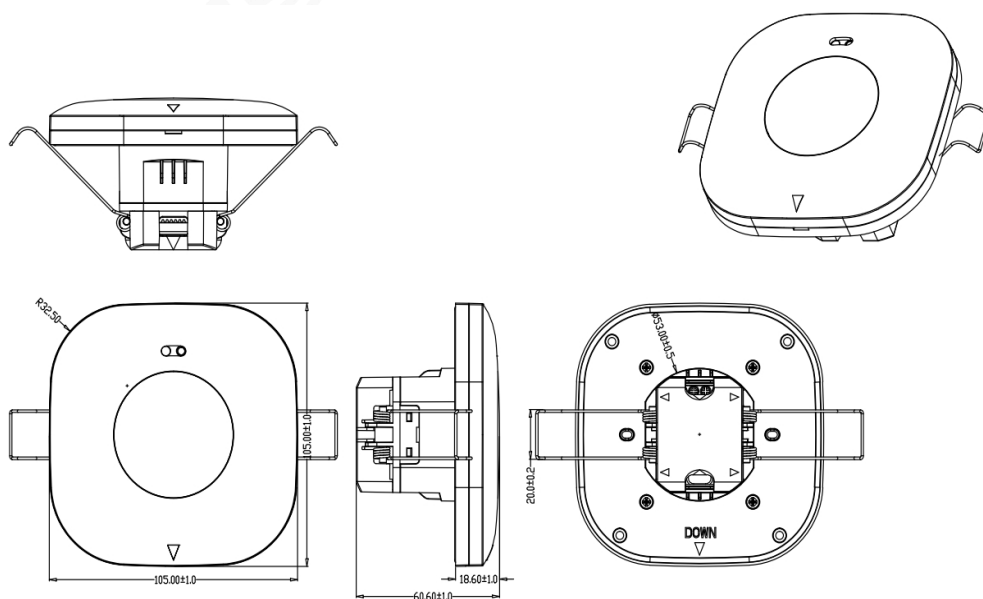
- Product size: 105x105x90.8mm(flush mounting)、105x105x65.8mm(surface mounting)
- Connection interface: 6-pin terminal

## 【Parameter】

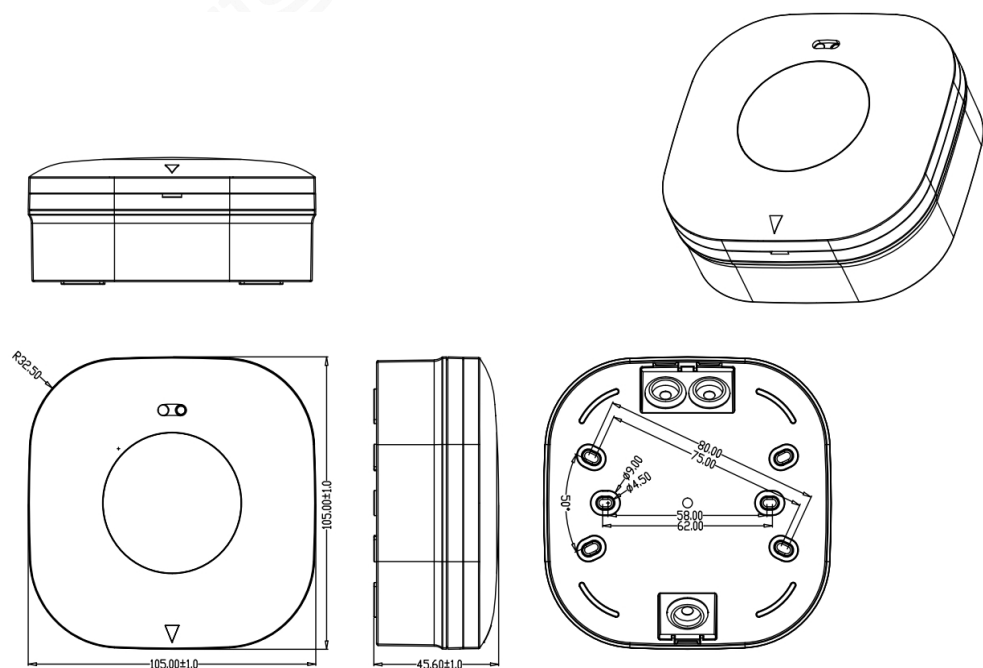
Input/Output	Input voltage	220-240V AC
	Rated voltage	220V AC
	Working current	50mA max
	Power consumption	≤1W @220/230V AC
	Output signal	DALI+PUSH+casambi
Sensor parameter	Function	24Gh mmW radar presence sensor+daylight sensor
	Detection Area	Casambi app: 0.5-4m
	Sensor Hold Time	Casambi app: 10S/30S/1Min/3Min
	Daylight Sensor	0-1200lux
	Radius detection range(based on 100% sensitivity and tangential moving)	major/minor/micor movement (3m height installation) : 3.5±0.5m (based on 41m² open area test and might change due to different space)
	Sensitivity	High/Medium/Low
	Remote control	Available
	Mounting height	2-4m typical value:3m
	3dB beam angle	100° (Horizontal)
		100° (Vertical)
Application environment	Drill hole	Φ55mm
	Working temperature	-25℃...+50℃
	Storage temperature	-40℃~+80℃
	Warranty	3 year (available based on product quality)
Certificate Standard	Certificate	Compliant to CE
	Environmental requirements	Compliant to RoHS
	IP rating	IP54
“N/A” means not available		

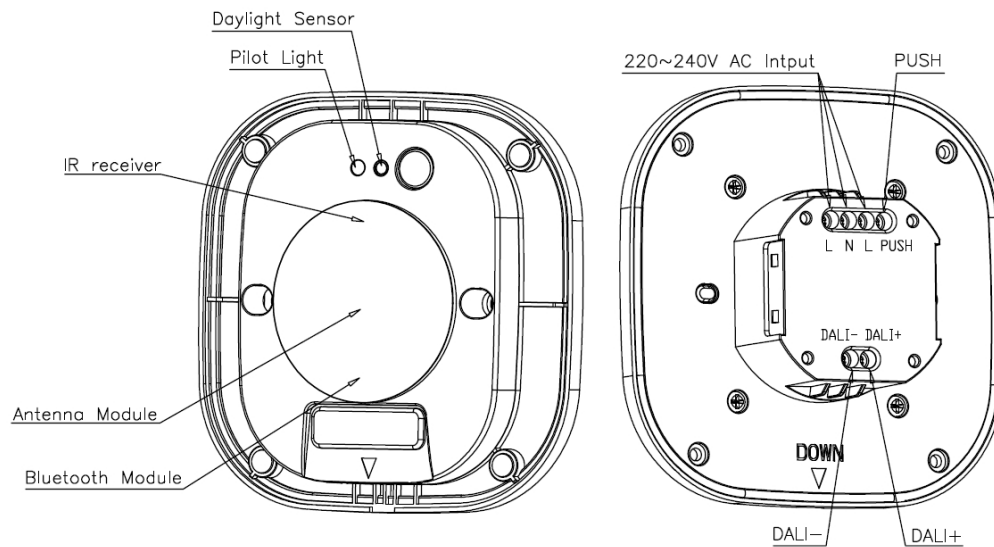
## 【Dimension and Function diagram】

### Flush mounting

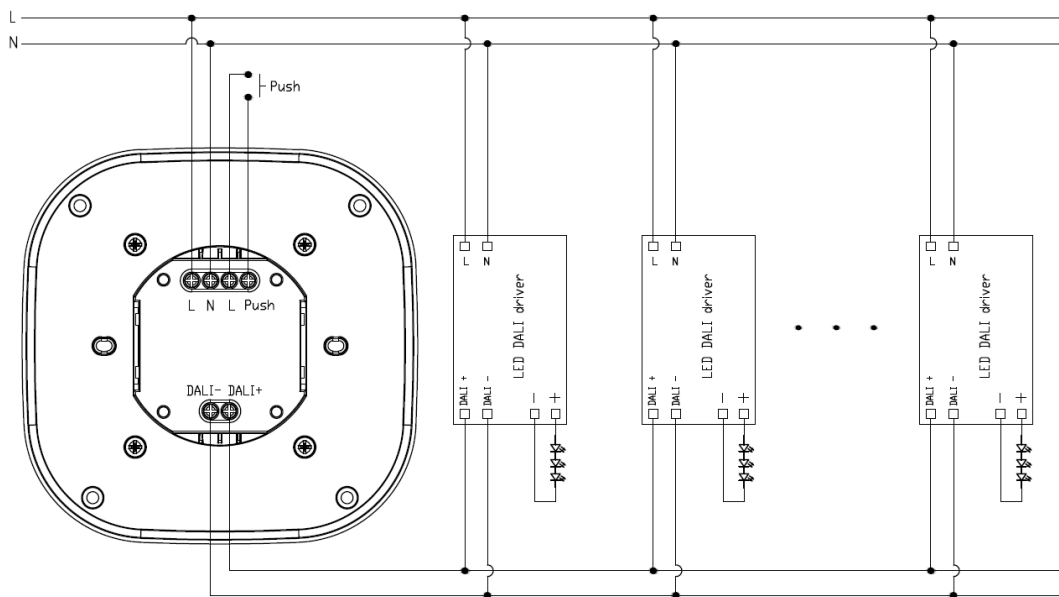


### Surface mounting





## 【Wiring instruction】



### Wiring layout suggestion:

1. LN terminal shall connect to AC input, DALI+ 、DALI- shall connect to dali driver, push and L connect to PUSH button, please wiring correctly
2. DALI terminal output broadcast signal and max access dali driver quantity shall not exceed 64pc
3. PUSH terminal can turn on/off by short press and dimming by long press

## 【Initialization】

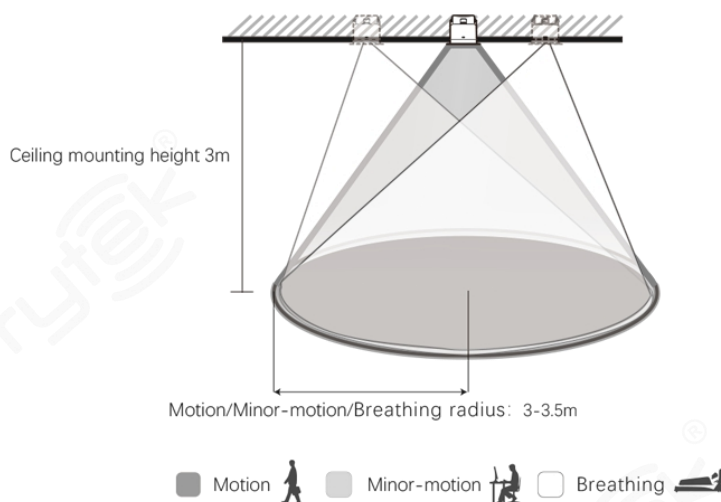
When powered on, sensor indicator will turn off after flashing for 10S and will not detect moving signal during this time. After 10S, you can use our MH10 remote or casambi app to adjust detection area、hold time and daylight sensor etc parameter.

## 【Factory setting】

Detection Area:4m, Hold Time: 30s, Indicator:ON

## 【Detection radiation】

MSA227 99 B1 is highly recommended ceiling flush mounting and its detection radiation is as below shows:



## 【Detection Signal】

The product detects human moving, minor moving, and presence signals, and realizes the detection of human-existing/no-human in non-sleep state. The following is a description of the moving, minor moving and presence signals:

- **Major movement:** detect the human significant moving (walking) in the detection area.
- **Minor movement:** detect the human slight moving in the detection area, such as leaning forward, leaning forwarder and back, swinging limbs, shaking head, typing, playing with mobile phones and so on.
- **Micro movement:** detect human abdominal and thoracic expansion behaviors caused by breathing, but not detect moving signal and minor moving signal.



Major movement

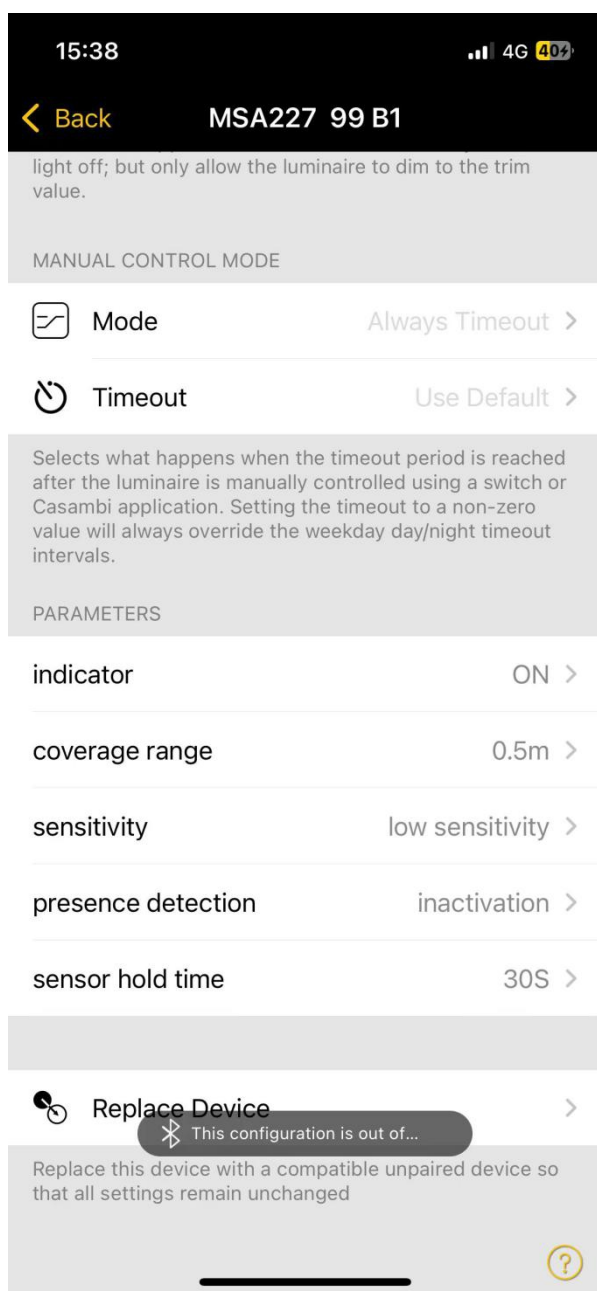


Minor movement



Micro movement

## 【Casambi app】



indicator: ON/OFF

coverage range: 0.5-4m

sensitivity: high/medium/low sensitivity

presence detection: activation/inactivation

sensor hold time:10s/30s/1Min/3Min

## 【Disclaimer】

Due to the complexity of product technology and differences in application environment, it is difficult to guarantee a completely accurate or complete description, so this specification is only for user reference. We will reserve the right to make changes to the product specifications without notifying the user, and do not make any commitments and guarantees in the legal sense. At the same time, our company encourages users to supplement or modify the contents of our specifications after using our products.