Specification

Product Name:	**24GHz Small-space presence sensor（ON/OFF version）**
Product Model:	**MSA215 99**
Product Version:	**V1.0**

Versions	Release/ change Date	Publishing
V1.0	2023.11.24	Jacky

【Product Description】

MSA215 99 is a 24GHz radar sensor based on Merrytek patented multi-array antenna. Its antenna has high gain and very narrow detection range.Combined with Merrytek's unique software algorithm,it can accurately detect minor movements brought by human in almost all indoor spaces and best presence detection solution for workspace and toilet cubicle etc small-space scenes.

【Product Feature】

- Exclusive Merrytek Lifebeing Presence Detection
- Accurate Presence/Absence Output
- ON/OFF switch function available
- Daylight Sensor Available
- Precious small-space presence detection
- Presence detection diameter: 1-3m
- Minor Motion detection diameter: 1-3m
- Motion detection diameter: 1-3m
- Max loading capacity :800w resistive loading and 400w inductive loading
- Absence switch to Presence within 0.5S
- Presence switch to Absence no less than 30S
- Flush mounting installation available
- Sensor parameter adjustable by MH10 remote or DIP switch
- Sensing function based on millimeter wave radar technology
- Low RF power output. No harm to human health
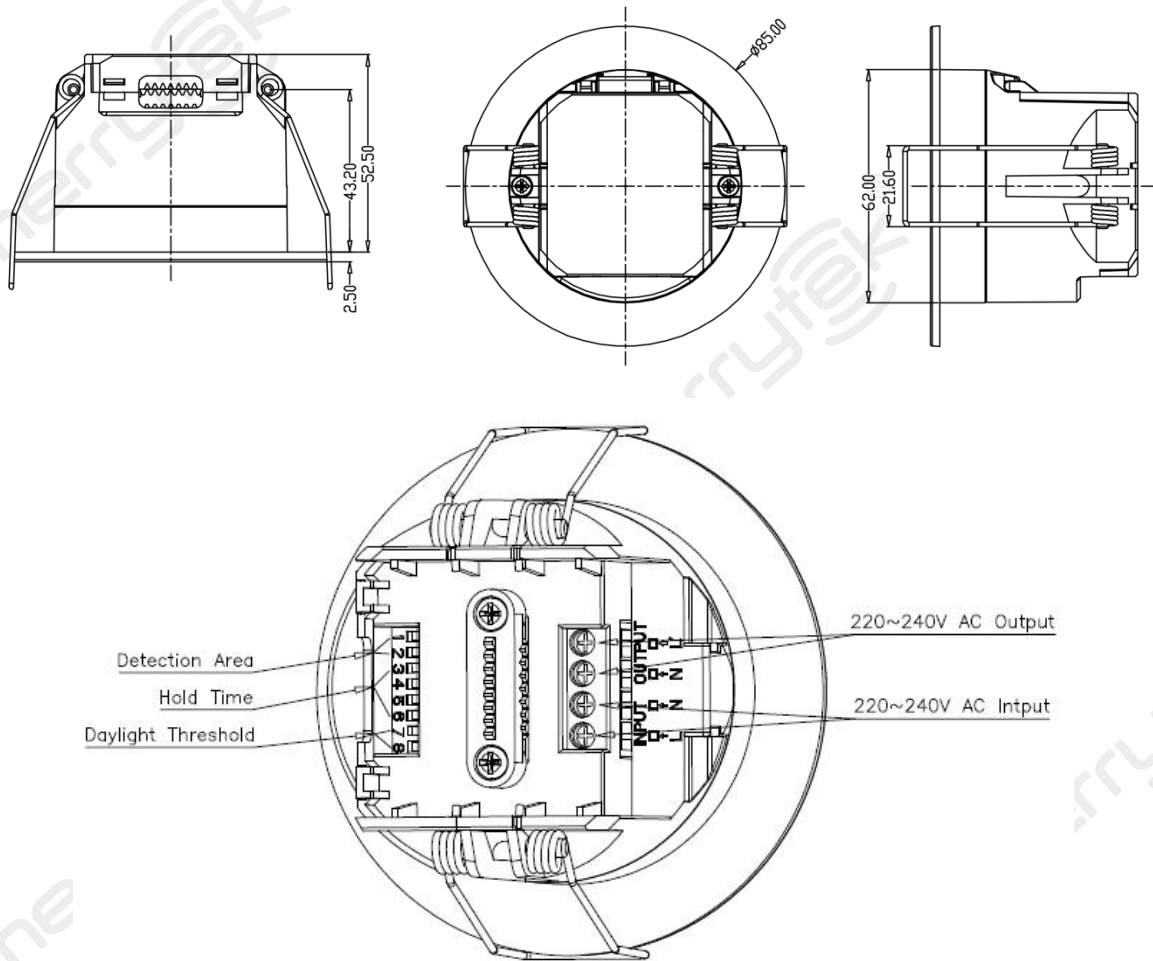- Not affected by temperature, humidity, noise, airflow, dust, light and other environments

【Product dimension】

- Dimension: φ85x52.5mm
- Terminal: 4pin terminal

【Parameter】
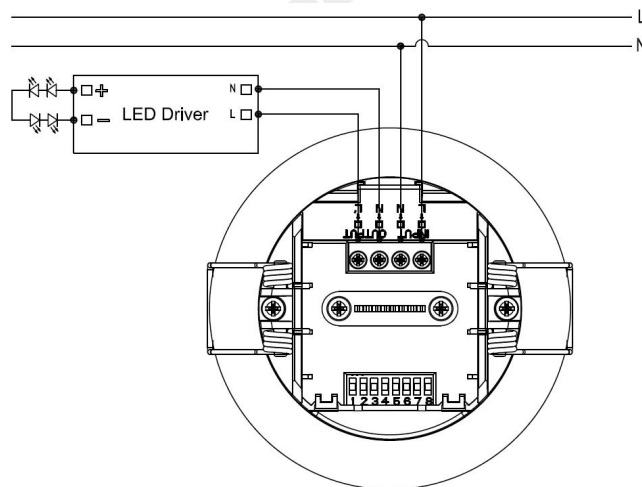
Input/Output	Input voltage	100-240V AC 50-60Hz
	Rated voltage	220V AC
	Working current	50mA max
	Power consumption	≤1W 230V AC
	Load capacity	800w resistive loading or 400w inductive loading
	Loading instant peak current	30A
Sensor parameter	Radar frequency	24.125GHz±125MHz ISM band
	Radar transmit power	5mW Max
	Detection Area	DIP or remote setting: 25%-100%
	Hold Time	DIP or remote setting: 5s-30min
	Radius detection range(based on 100% sensitivity)	Motion detection（3m height）：0.5-1.5m Minor motion detection（3m height）：0.5-1.5m Presence（3m height）：0.5-1.5m
	Daylight sensor	5-150lux/Disable
	Remote control	Available
	Mounting height	2-4.0m
	3dB beam angle	30°（horizontal）
		30°（vertical）
Application environment	Drill hole	Φ65-70mm
	Installation	Flush mounting
	Working Temperature	0℃...+50℃
	Storage Temperature	-25℃~+80℃
Certificate Standard	Certificate	CE/FCC/RED
	Environmental Requirement	Compliant to RoHS
	IP Rating	IP20
"N/A" means not available		

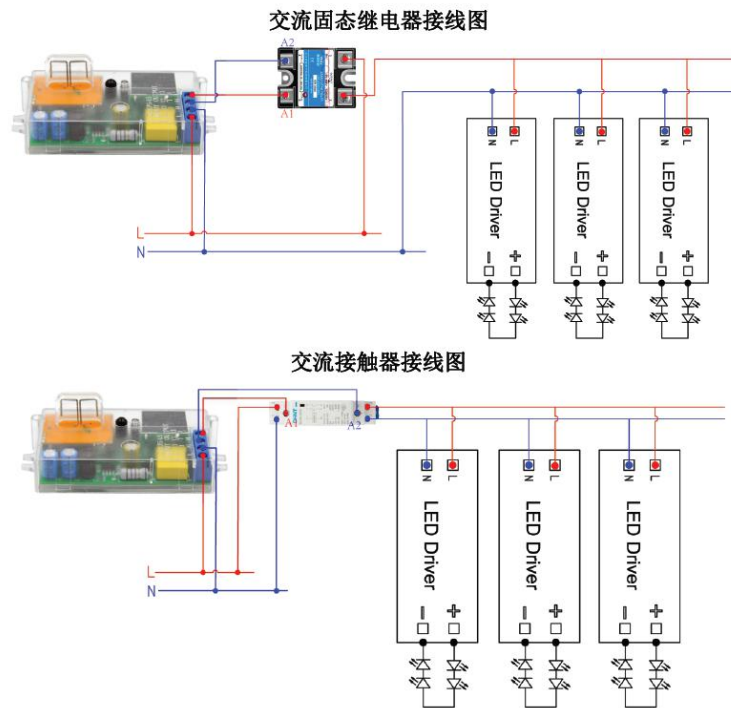# 【Dimension and Function diagram】

Detection Area
Hold Time
Daylight Threshold

220~240V AC Output
220~240V AC Intput

【Wiring instruction】

LED Driver

Wiring layout suggestion：

1. LN terminal stands for AC input, L'N' stands for AC output,please wiring correctly

2. One sensor's max loading capacity is 800w resistive loading and 400w inductive loading for one single load.if you want connect more load in one loop,we recommend to add an AC contactor in our output LN terminalto avoid momentary surge overload.

交流固态继电器接线图

交流接触器接线图

注：负载能力由交流固态继电器/交流接触器性能决定。

【Initialization】

When powered on,sensor indicator will turn off after flashing for 20S and will not detect moving signal during this time. After 20S,you can use our MH10 remote or dip switch to adjust detection area、hold time and daylight sensor etc parameter.

【Factory setting】

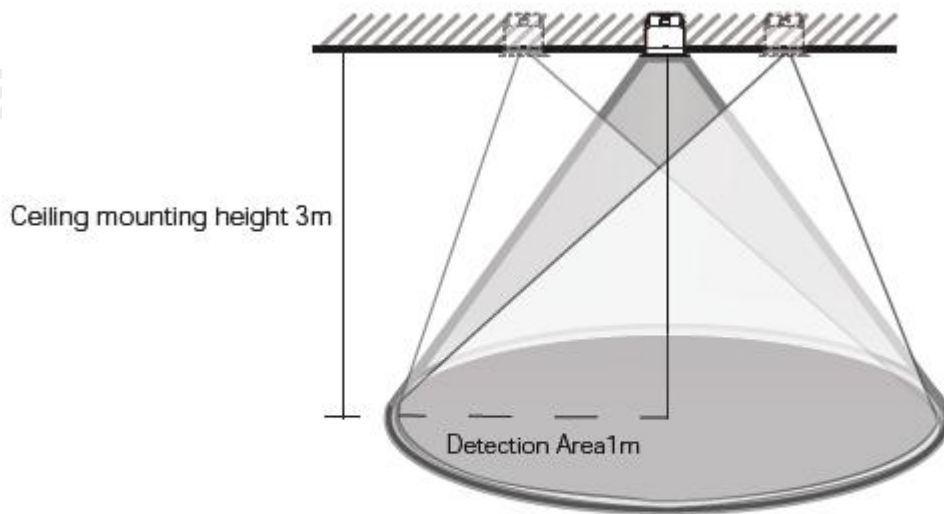Detection Area: 100%   Hold Time: 1Min

Indicator light: Open   Daylight sensor: Disable

【Detection radiation】

MSA215 99 is highly recommended ceiling flush mounting and its detection radiation is as below shows:

Ceiling mounting height 3m

Detection Area1m

■ Motion 🚶   ■ Minor-motion 🧍   ☐ Breathing 🛏

【Detection Signal】

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

● **Moving signal:** detect the human significant moving (walking) in the detection area.

● **Minor moving signal:** detect the human slight moving in the detection area, such as leaning forward, leaning forwarder and back, swinging limbs, shaking head, typing, playing with mobile phones and so on.

● **Presence signal:** detect human abdominal and thoracic expansion behaviors caused by breathing, but not detect moving signal and minor moving signal.

【DIP setting】

Detection Area

	1	2	
I	ON	ON	100%
II	-	ON	75%
III	ON	-	50%
IV	-	-	25%

Hold Time

	3	4	5	6	
I	ON	ON	ON	ON	5S
II	ON	ON	-	ON	30S
III	-	ON	ON	ON	1min
IV	ON	-	ON	ON	3min
V	-	-	-	-	5min

Hold time shall set more than 30s to enable presence detection

Daylight Sensor

	7	8	
I	ON	ON	5Lux
II	ON	-	30Lux
III	-	ON	50Lux
IV	-	-	Disable

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

Remote Control Setting	Button	Remarks
	ON/OFF	Press "ON/OFF", the load lamp will enter normal ON mode, sensor function will be override. "ON/OFF" key has the memory function after power off. The load lamp enter the normally ON mode after power on again. Press "Reset" / "Sensor motion" to exit the normally ON mode, and the sensing function is turned on.
	Reset	Press "RESET", sensor parameters return to factory setting. Detection Area: 100% Hold time: 1min Indicator light: open
	Sensor motion	Press "Sensor motion", return to sensor mode (previous parameters setting is valid)
	DIM Test	N/A
	Override DH	N/A
	DIM + DIM -	N/A
	DH Mode	N/A
	Q1 Q2 Q3	N/A
	TEST 2S	N/A
	HS LS	HS: Turn ON indicator light LS: Turn OFF indicator light
	☾☀	Daylight Sensor Set up daylight threshold: 5LUX/15LUX/30LUX/50LUX/100LUX/150LUX/Disable
	⏱	N/A
	⏲	Hold time Set up hold time: 5S/30S/1min/3min/5min/10min/20min/30min
	📊	N/A
	.)))	Detection Area Set up detection area: 25%/50%/75%/100%
	5m 10m 15m	Remote Distance Toggle bottom can set the remote distance of remote control and sensoer.

【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.