Specification

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

Product Model:　MSA065S 99

Product Version:　V1.0

Versions	Release Date	Record	Publishing
V1.0	2025.1.6	Initial version	Jacky

【Product Description】

MSA065S 99 is a 24GHz radar sensor based on Merrytek patented orthogonal antenna. Its antenna has high gain and wide detection range. Combined with Merrytek's unique software algorithm and FMCW modulation,it can accurately detect micro movements brought by human in almost all indoor spaces to automatically turn on or turn off lighting etc electrical appliance.

【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
- Accurate Presence/Absence detection
- Daylight Sensor Available
- PUSH button on/off or dimming control available
- 24Ghz ISM Band Millimeter Wave Radar technology
- Max loading capacity :800w resistive loading and 400w inductive loading
- 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
- Ceiling mounting installation available
- Sensor parameter adjustable by DIP switch or remote
- Sensing function based on millimeter wave radar technology
- Low RF power output. No harm to human health
- Not affected by temperature, humidity, noise, airflow, dust, light and other environments
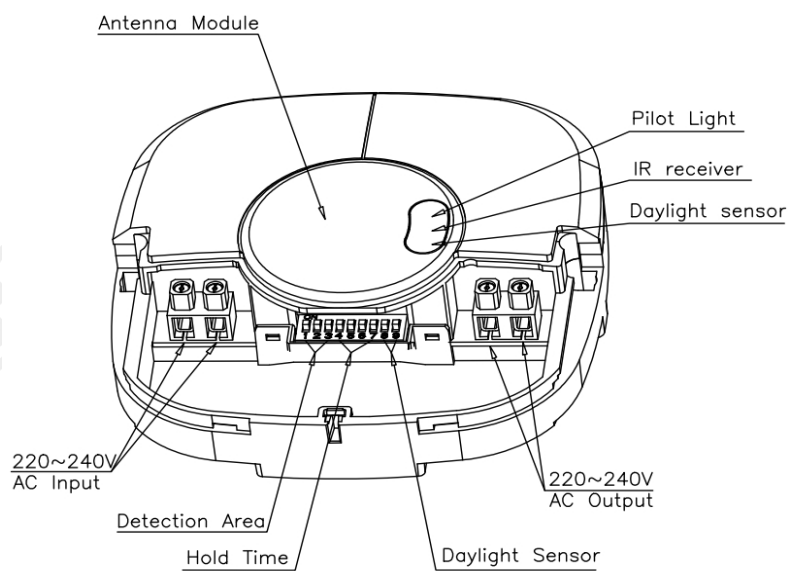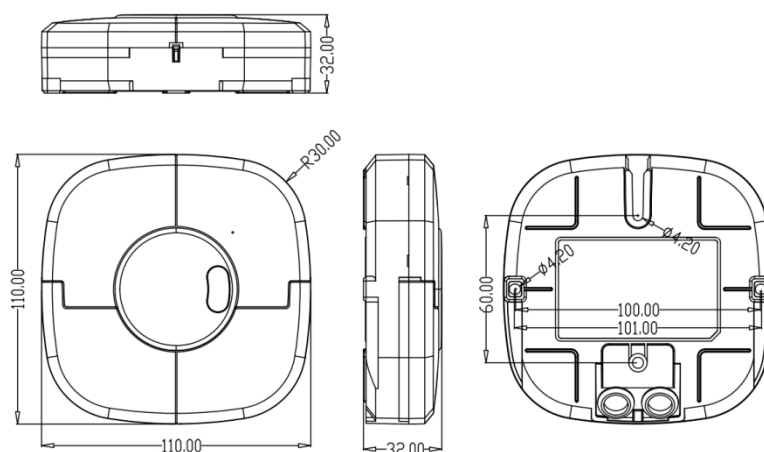
【Product dimension】

- Dimension: 110x110x32mm
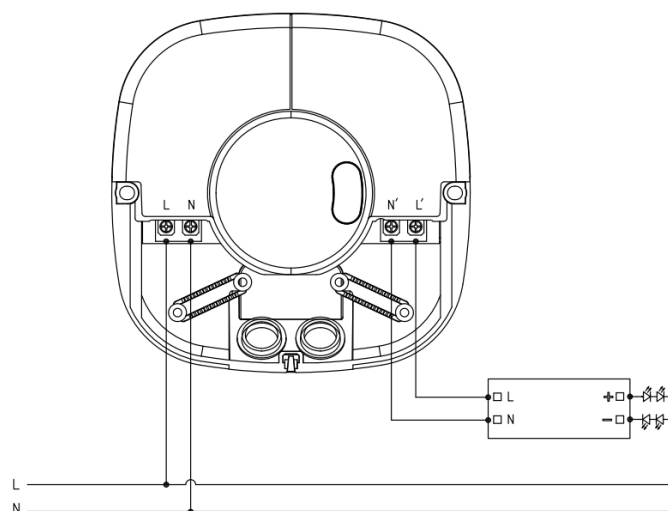- Connection interface: 4-pin terminal

【Parameter】

Input/Output	Input voltage	100-240V AC 50-60Hz
	Rated voltage	220V AC
	Working current	50mA max
	Consumption	≤1W 230V DC
	Max surge	1KV(L/N,EN61000-4-5)
	Output signal	1 channel ON/OFF(Max 800w resistive loading and 400w inductive loading)+1 channel push control
	Max surge current	16A relay 30A(test by 50% Ipeak and twidth 500us @230Vac by full loading from cold boot 60A(test by 50% Ipeak and twidth 200us @230Vac by full loading from cold boot
Sensor Parameter	Radar frequency	24GHz-24.25GHz ISM band
	Transmitting Power	5mW Max
	Detection Area	Remote/Dip setting: 0-4m
	Hold Time	Remote/Dip setting: 10s-30min Remark: presence detection will be available only when hold time be set >30s
	QS1+100% detection range radius	major/minor/micro movement（3m height installation）: 3.5±0.5m（based on 41 ㎡ open area test and might change due to different space）
	Daylight sensor threshold	5-150lux/Disable
	Sensitivity	High/Medium/Low
	Remote control	Available
	Mounting height	2.5-4.0m typical value:3m
	3dB beam angle	100°（XZ）
		100°（YZ）
Application Environment	Installation	Ceiling mounting
	Working temperature	0℃...+50℃
	Storage temperature	-40℃~+80℃
	Warranty	3 years（available due to product quality problem under indoor application）
Certificate Standard	Certificate	Compliant to CE
	Environmental requirements	Compliant to RoHS
	IP rating	IP20
"N/A" means not available		

【Dimension and Function diagram】

- Antenna Module
- Pilot Light
- IR receiver
- Daylight sensor
- 220~240V AC Input
- Detection Area
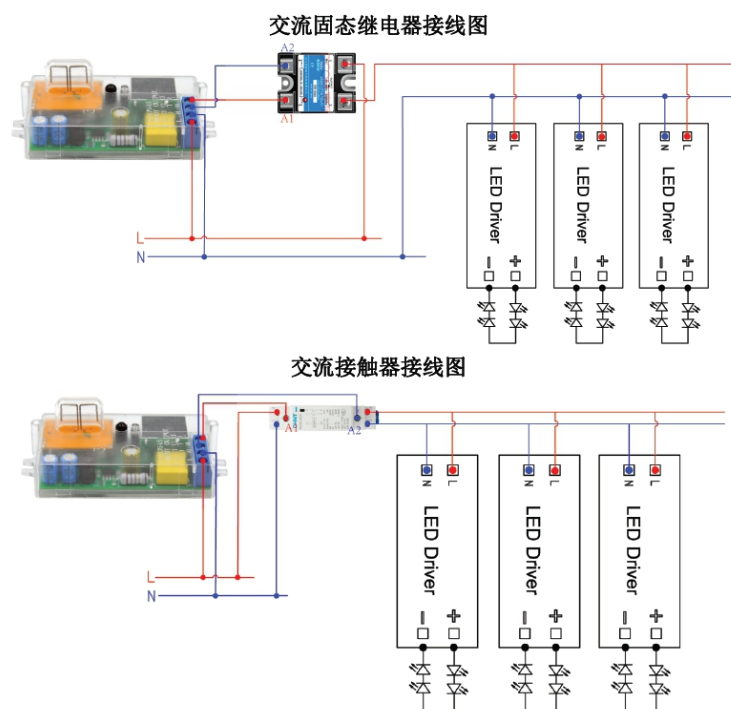- Hold Time
- Daylight Sensor
- 220~240V AC Output

【Wiring instruction】

Wiring layout suggestion：

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

2. One sensor's max loading capacity is 800w resistive loading and 400w inductive loading for one single load.if you want connect more load in one loop,we recommend to add an AC contactor in our output LN 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 10S and will enter a 20S detection cycle,if there's presence detected,then sensor will report presence and enter hold time calculating,if absence detected,then sensor will report absence.During initialization,sensor will not detect moving signal and you can use our MH10 remote or DIP switch to adjust detection area、hold time and daylight sensor etc parameter.

【Factory setting】

Detection Area: 4m(Medium sensitivity)   Hold Time:30s
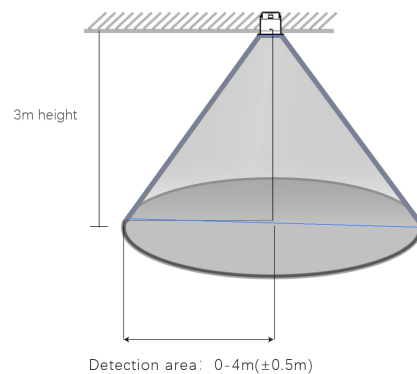
Indicator light: ON   Daylight sensor: Disable

【Detection radiation】

MSA065S 99 is highly recommended ceiling flush mounting and its detection radiation is as below shows:

3m height

Detection area：0~4m(±0.5m)

【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

【DIP switch setting】

Detection Area

	1	2	3	
I	ON	ON	ON	4m
II	-	ON		3.5m
III	ON	-	-	3m
IV	-	-		2.5m
V	ON	ON	-	2m
VI	-	ON		1.5m
VII	ON	-	ON	1m
VIII	-	-		0.5m

Hold Time

	4	5	6	7	
I	ON	ON	ON	ON	10S
II	ON	-	ON	ON	30S
III	ON	ON	-	ON	1min
IV	ON	ON	ON	-	3min
V	ON	ON	-	-	5min
VI	-	-	ON	ON	10min
VII	-	-	-	-	30min

Remark: presence detection will be available only when hold time be set >30s

Daylight Sensor

8	9	
ON	ON	5Lux
-	ON	50Lux
ON	-	150Lux
-	-	Disable

Remark: when daylight sensor set disable,light will turn on once motion detected regardless of environment lux

【Remote manual】

MH18 remote
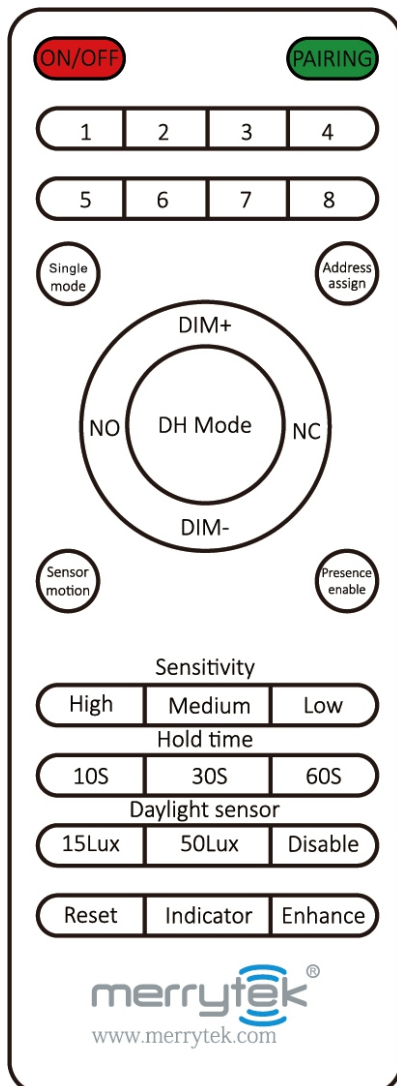
ON/OFF: disable sense function

Detection range:
1=0.5m,2=1m,3=1.5m,4=2m,5=2.5m,6=3m,7=3.5m,8=4m

Single mode: long press>3s to enter single mode

Sensor motion: enable sense function

Presence enable:short press enable presence detection,long press disable presence detection

Sensitivity: short press to switch high/medium/low sensitivity

Hold time: short press to switch 10s/30s/60s hold time

Daylight sensor threshold: short press to switch 15lux/50lux/disable

Reset: all parameter back as factory setting

Indicator:short press to open indicator,long press to close indicator

Enhance:short press to enter self-learning mode

【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.