Specification

Product Name:	24GHz Large-space presence sensor （KNX version）
Product Model:	MSA237K 99 C
Product Version:	V1.0

Versions	Release Date	Record	Publishing
V1.0	2025.3.28	Initial version	Jacky

【Product Description】

MSA237K 99 C is a 24GHz radar sensor based on Merrytek patented orthogonal half-wave bending antenna. Its antenna has high gain and wide detection range and is combined with Merrytek's unique software algorithm. It can accurately detect minor 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 by KNX communication.

【Product Feature】

- Exclusive Merrytek Lifebeing Presence Detection
- FMCW modulation technology applied to detect micro movement brought by breathing
- Germany RF technology applied for 3-year guarantee assurance
- Accurate Presence/Absence Output
- Daylight Sensor Available
- Daylight threshold and Constant daylight function available
- Support KNX communication
- Master-slave control available
- Easy BLE control system available
- Two-channel lighting control and one-channel HVAC control 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 installation available
- Sensor parameter adjustable by ETS 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
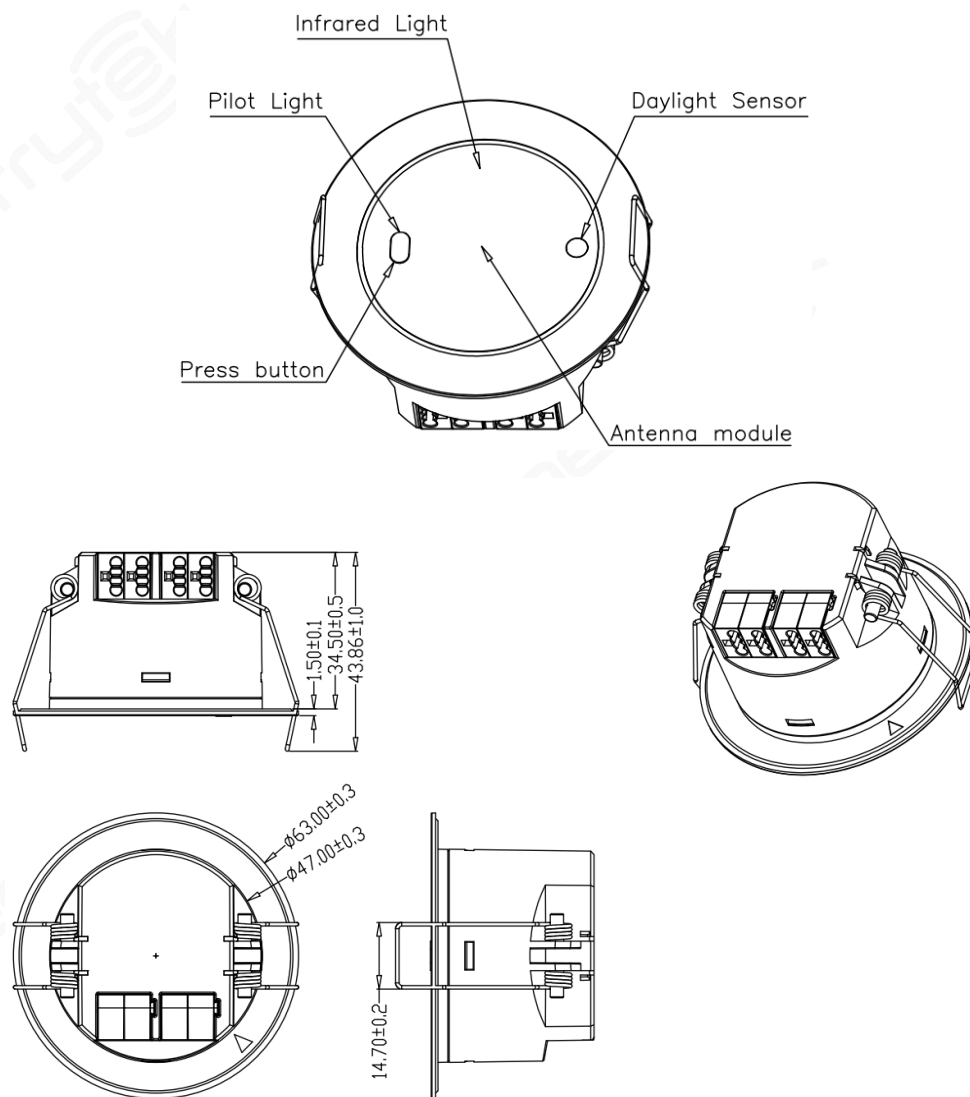
【Dimension】

- Product size: φ63x35mm
- Connection interface:Auxiliary power supply: 4-pin yellow and white shrapnel lifting terminals
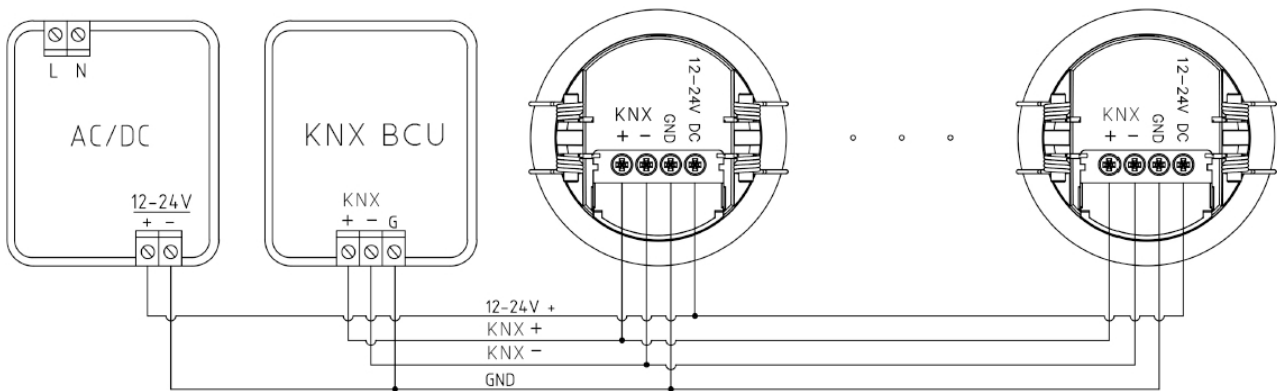
  KNX bus terminal: 4-pin red and black KNX terminals

【Parameter】

Input/Output	Auxiliary Power Supply Voltage Range	12-30V DC
	KNX Terminal Voltage	21-30V DC
	Auxiliary Power Supply Working Current	12V : 55±3mA Max 24V: 30±3mA Max
	KNX Terminal Current	3±1mA
	Working Power	≤1W @24V DC
Sensor Parameter	Working Frequency	24GHz-24.25GHz ISM band
	Transmitting Power	5mW Max
	Detection Area	ETS/remote setting: 0.5-4m
	Hold Time	ETS/remote setting: 3S-7200S Remark: For better presence detection,hold time shall set >30S
	Detecting Range (100% detection area, radius)	major/minor/micor movement（3m height installation）: 3.5±0.5m （based on 41㎡ open area test and might change due to different space）
	Remote Control	Support
	Mounting Height	2-4m, typical value: 3m
	3db Beam Angle	100° (XZ field)
		100° (YZ field)
Application environment	Flush-mounted Hole Size	Φ50-55mm
	Working Temperature	0℃...+50℃
	Storage Temperature	-40℃...80℃, Humidity: ≤85%(non-condensing)
Certificate Standard	Certificate	FCC/RED
	Environmental Requirement	Compliant to RoHS
	IP Rating	IP20
	Gurantee	3 year （only for product quality problem under indoor application）
"N/A" means not available		

【Dimension and Function diagram】

Infrared Light

Pilot Light

Daylight Sensor

Press button

Antenna module

1.50±0.1
34.50±0.5
43.86±1.0

Φ63.00±0.3
Φ47.00±0.3

14.70±0.2

【Wiring instruction】

Wiring layout suggestion：

1. KNX bus wiring suggestion hand in hand to the end, star or tree wiring is not recommended to ensure the stability of signal transmission.

2. KNX bus wiring wire recommends KNX standard EIB shielded wire or Category 6 network cable, the length of the bus wiring is recommended not to exceed 400 meters, and the number of sensor connected to a bus is recommended to not exceed 12.

3. The number of sensors connected to a bus needs to fully consider the current load capacity of the power supply: that is the sum of the currents of all KNX devices (including sensors) shall not be greater than the load current of the KNX power supply.

【Start Process & Initialization】

After routing the physical addresses and setting the channel parameters, follow these steps:

(1) Connect Bus interface;

(2) Set Bus and auxiliary power on (note: please make sure that product has auxiliary power supply, otherwise the device may not work properly);

(3) Press the programming switch of the product, the LED light will turn red;

(4) Use the bus interface to download the physical address through the ETS software. The programming LED light is off to indicate that the physical address download is successfully completed;

(5) Download the application after setting the required application parameters.

(6) After downloading the application, the product goes into initialization. During initialization, detection function

is disable. After 20S, the initialization is completed, and the product works normally;

Note: Please use the latest version of ETS 5 or 5.7.2 version. Please obtain thee ETS engineering configuration file of this sensor from our sales staff.

【Initialization】

When powered on,sensor indicator will turn off after flashing for 10S and will enter a 20S detection cycle,if there's presence detected,then sensor will enter hold time calculating,if absence detected,then sensor relay will disconnect.During initialization,sensor will not detect moving signal and you can use our MH18 remote to adjust detection area、hold time and daylight sensor etc parameter.

【Factory setting】

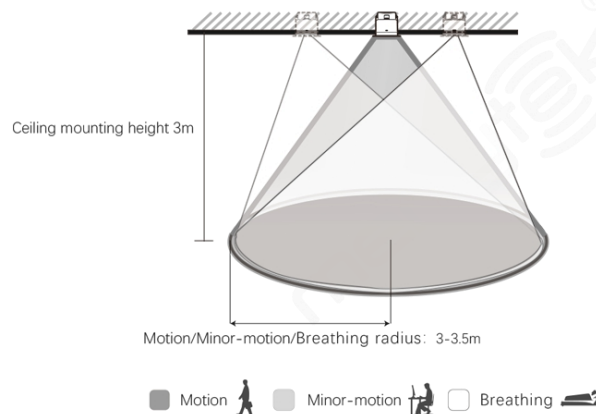Detection Area: 4m   Hold Time: 30S

Indicator Light: open   Sensitivity : medium sensitivity

【Detection radiation】

MSA237K 99 C 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.
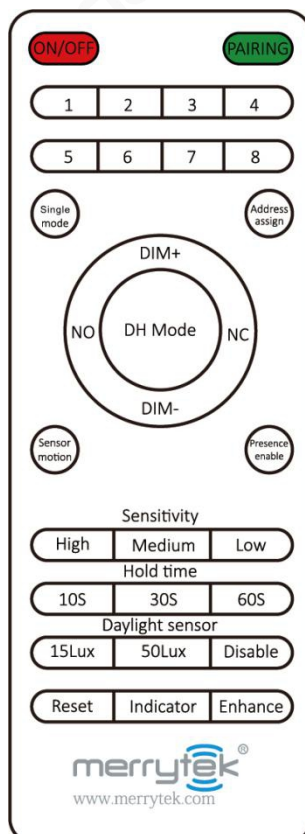

Major movement   Minor movement   Micro movement

【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

Reset: all parameter back as factory setting

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

【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.