Specification

Product Name: **24GHz Large-space presence sensor（KNX version）**

Product Model: **MSA219K 99 A**

Product Version: **V1.0**
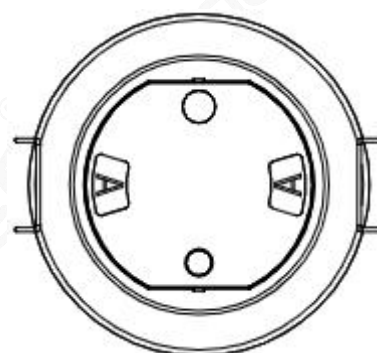
Versions	Release/ change Date	Publishing
V1.0	2023.12.05	Jacky

【Product Description】

MSA219K 99 A is a 24GHz radar sensor based on Merrytek patented orthogonal half-wave bending antenna. Its antenna   is flipable from -30° to 30° and 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 huamn presence/absence information for smart home, smart hotel, smart office and other scenes.

【Product Feature】

- Exclusive Merrytek Lifebeing Presence Detection
- Accurate Presence/Absence Output
- Daylight Sensor Available
- KNX communication available
- Detection antenna flipable from -30°to 30°
- 24Ghz ISM Band Millimeter Wave Radar technology
- Presence detection diameter: 5-7m Max
- Minor Motion detection diameter: 6-8m Max
- Motion detection diameter: 6-8m Max
- Presence, minor motion and 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 30S
- Flush mounting and Surface mounting installation available
- Sensor parameter adjustable by ETS
- Sensing function based on millimeter wave radar technology
- Low RF power output. No harm to human health
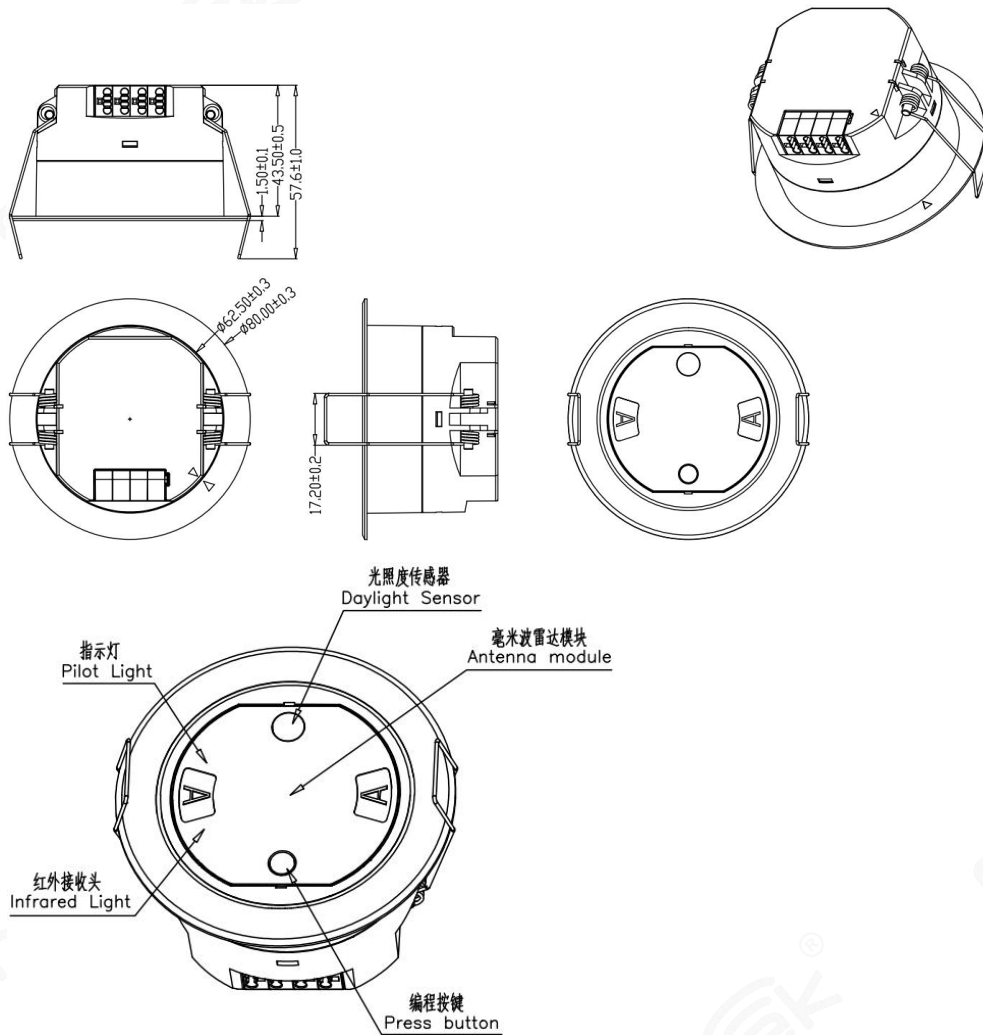- Not affected by temperature, humidity, noise, airflow, dust, light and other environments

【Product dimension】

- Dimension: φ89x43.5mm
- Wiring: Auxiliary power supply: 4 yellow and white shrapnel lifting terminals
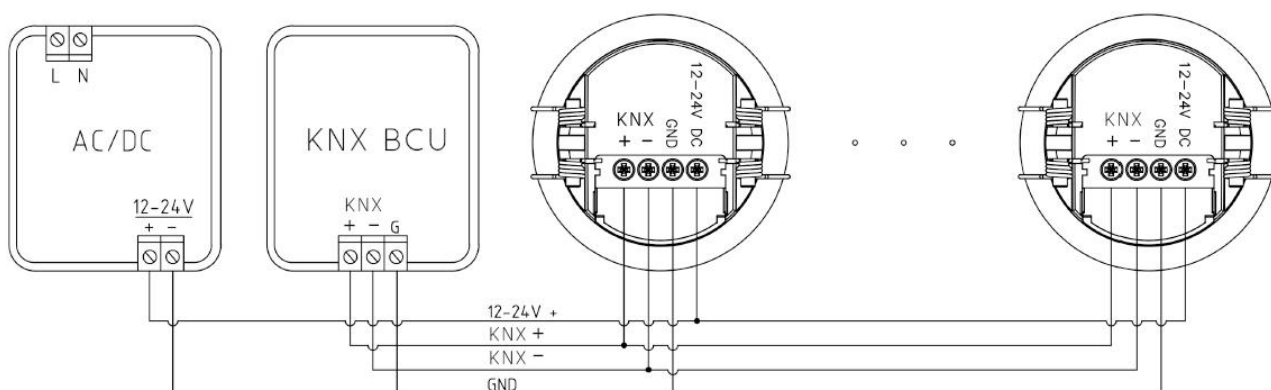
    KNX bus terminal: 4 red and black KNX terminals

【Parameter】

Input/Output	Aux power supply volatge	12-24V DC
	KNX voltage	21-30V DC
	Aux power supply current	12V : 52±3mA 24V: 26±3mA
	KNX bus current	≤10mA
	Consumption	≤0.5W @24V DC
Sensor Parameter	Radar frequency	24GHz-24.25GHz ISM band
	Transmitting Power	5mW Max
	Detection Area	ETS setting: 1-100%
	Hold Time	ETS setting: 1s-30min
	Detecting Range (100% detection area, radius)	Movement: 3-4m (at 3m height)
		Minor Movement: 2.5-3.5m (at 3m height)
		Presence: 2.5-3.5m (at 3m height)
	Daylight measure range	1-65535 Lux
	Remote control	Available
	Mounting height	2.5-4.0m
	3dB beam angle	100°（horizontal）
		100°（vertical）
Application Environment	Drill hole	Φ70mm
	Working Temperature	0℃...+50℃
	Storage Temperature	-25℃~+80℃
Certificate Standard	Certificate	FCC/RED
	Environmental Requirement	Compliant to RoHS
	IP Rating	IP20
Note: "N/A" means not available.		

【Dimension and Function diagram】

光照度传感器
Daylight Sensor

指示灯
Pilot Light

毫米波雷达模块
Antenna module

红外接收头
Infrared Light

编程按键
Press button

【Wiring Diagram & Recommendations】

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

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:
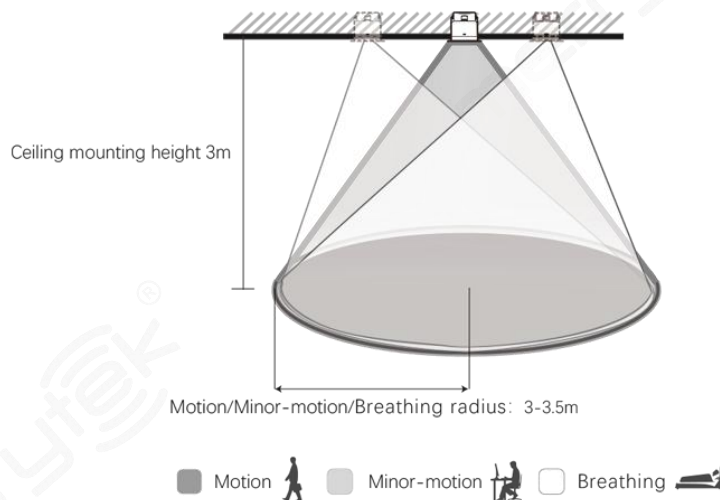
(1) Connect Bus interface;

(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.

【Detection radiation】

MSA219 K 99 A is highly recommended ceiling flush mounting and its detection radiation is as below shows:

Ceiling mounting height 3m

Motion/Minor-motion/Breathing radius: 3-3.5m

■ Motion 🚶　■ Minor-motion 🧑‍💻　□ Breathing 🛏️

【Signal Detection Description】

This millimeter-wave radar sensor detects human body movement, micro-movement, and presence signals, and realizes the detection of human body presence(human-existing/no-human) in a non-sleeping state. The following is a description of movement, micro-motion, and presence signals:

● Motion Signal: detect the human significantly moving (walking) in the detection area.

● Minor-Motion 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.

【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.

【Disclaimer】