



MSR01

Millimeter Wave
Radar Sensor

Datasheet



PRODUCT OVERVIEW

MSR01 is a millimeter-wave radar sensor independently designed and developed by MINEW, featuring multiple communication methods including WiFi and Bluetooth® LE. This specification mainly introduces the MSR01 millimeter-wave radar sensor of the WiFi version. The MSR01 millimeter-wave radar sensor of the WiFi version is mainly used in applications such as space management and personnel sensing. It can achieve functions such as human presence detection, pedestrian flow statistics, and headcounting. It features high - sensitivity sensing, excellent algorithms with an accuracy rate of up to 99%. Equipped with a self - learning function, it can deeply learn to recognize environmental conditions and filter out interference sources. It also supports BLE to scan the data of external Bluetooth sensors and upload it to a server/cloud. Future updates will support functionalities such as trajectory tracking, and respiratory and heart rate detection. The sensor provides non-inductive detection without privacy concerns and has broad applications in smart offices, smart buildings, smart retail, smart hotels, intelligent security, and smart home solutions.



KEY FEATURES



Millimeter - wave non - inductive detection, with no privacy or sensitivity issues



Ultra - high accuracy rate, enabling precise identification of static and moving targets



4T4R MIMO antenna design offers high resolution



AI self-learning function adapts to various environments



It features ultra-strong anti-interference, unaffected by doors, windows, glass or metal



Users can flexibly configure the detection area



It can realize multi-target detection and provide coordinate information



Magnetic installation, allowing 360° rotation for adjusting the installation angle



120° field of view and an installation height of 2.5 - 4m



Human presence & pedestrian flow detection. Rich functions, wide applications



It supports three network configuration methods: Bluetooth provisioning, Wi-Fi SmartConfig, and AP hotspot configuration



It supports three protocols, MQTT/HTTP/HTTPS, enabling rapid connection to customers' platforms



Combining the functions of a Wi-Fi gateway and a sensor, it supports scanning and uploading of external Bluetooth data



Supports data storage during network outages, ensuring stability and reliability

MARKET APPLICATIONS



Smart Office

conference room occupancy detection, personnel positioning. Intelligent management, optimized configuration.



Smart Elderly Care

Human presence detection: Alerts are triggered when the elderly or patients leave the ward or bed, providing intelligent care.



Smart Supermarkets

passenger flow statistics, Regional heat map effect. Intelligent data analysis, optimization of marketing strategies.



Smart Building

human body presence perception, personnel positioning, human flow statistics. Intelligent control, improve service quality, reduce cost and increase efficiency.



Smart Hotel

human presence perception, entry and exit judgment. Scene linkage, improve customer experience, intelligent management, cost reduction and efficiency increase.



Smart Security

Real-time area monitoring, alerts for abnormal behavior or unauthorized access; enhances security and provides better services and benefits for enterprises.

PRODUCT SPECIFICATIONS

BASIC SPECIFICATIONS

| | | | |
|-----------------------------------|--|----------|----------|
| Model | MSR01 | | |
| Communication Version | WiFi | | |
| Sub Model | MSR01-WA | MSR01-WB | MSR01-WN |
| Functional category | Human presence detection (MSR01-WA); Headcounting(MSR01-WN); pedestrian flow statistics (MSR01-WB) | | |
| Material | ABS+PC | | |
| Color | White | | |
| Size | Φ83*21mm (main body) Φ66*6.1mm (mounting base) | | |
| Operating Temperature | -10°C~+45°C | | |
| Operating Humidity | 0~95%RH, no condensation | | |
| Power Supply | DC12V/1A | | |
| Power Supply Mode | DC 12V power cable connection or optional adapter | | |
| Radar Operating Frequency | 60GHz | | |
| Radar Antenna Design | 4T4R | | |
| Detection Angle | 120° | | |
| Detection Range | Ceiling installation, projected ground radius 3 meters | | |
| Power Consumption | <3W | | |
| LED | 1 RGB light | | |
| Installation Mode | Ceiling mounted, magnetic | | |
| OTA | Yes | | |
| store data during network outages | Yes | | |
| APP | MinewLink ^[1] | | |

[1] SDK is available, please contact our sales team for details.

WIFI VERSION (MSR01-WA/MSR01-WB/MSR01-WN)

| | |
|----------------------|--|
| WiFi Protocols | IEEE 802.11 b/g/n |
| WiFi Frequencies | 2.4-2.4835GHz |
| Emitting Power | 20.5dBm(typical)@802.11b,1,11Mbps 20.0dBm(typical)@802.11g, 6Mbps 18.0dBm(typical)@802.11g, 54Mbps |
| Network Protocol | MQTT (SSL/TLS) /HTTP/HTTPS |
| Modulation Mode | WPA_PSK, WPA2_PSK, WPA_WPA2_PSK |
| Network Setting Mode | SmartConfig / AP Hotspot Configuration / Bluetooth Provisioning |
| BLE Scan Function | Supports BLE scanning function, can upload external Bluetooth sensor data |

SUPPORT SYSTEMS

SUPPORTED MODELS

iOS 10.0 and above

iPhone6/6Plus/6S/6SPlus, iPhone 7/7Plus, iPhone 8/8Plus, iPhone x/xr/xs/xs max, iPhone SE/SE2, iPhone 11/11 pro/11 pro max, etc.

Android 4.3 and above

Samsung, Xiaomi, Huawei, Honor, OnePlus, Google pixel, etc.

DEVICE OPERATIONS

Power on

Power on when connected to the power supply. For configured products, the blue light stays on; for unconfigured ones, it flashes.

Power off

Power off when disconnected to the power supply, no lighting effect.

* For specific product instructions, please refer to the product manual, and you can contact our sales staff to provide them.

PRECAUTIONS

- * Please use the device on the suggested working temperature for safety.
- * When using the self-learning function, ensure that no one is in the area to avoid learning failures
- * Please ensure that the positive and negative poles of the power supply are connected correctly during equipment installation, otherwise the product will not work.
- * Please do not disassemble the main shell without permission, our company will not be responsible for any damage caused.
- * The WiFi version does not need to be used with an external gateway. When the BLE scanning function is enabled, the number of scans is limited, so it is recommended to set BLE filtering conditions.
- * When the WiFi version is used as a gateway to scan external Bluetooth sensors, the number of Bluetooth sensors to be scanned does not exceed 20. Please refer to the user manual for specific instructions and operation methods.

CERTIFICATIONS

  

* Note: CE, FCC, RoHS numbers are available, if you need other certifications, please contact our business team.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. FCC warning: Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: -Reorient or relocate the receiving antenna. -Increase the separation between the equipment and receiver. -Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. -Consult the dealer or an experienced radio/TV technician for help. This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

PACKAGING

| | Inner Box | Outer Box |
|--------------|---|---|
| Picture |  |  |
| Quantity | 6 pcs/box | 48 pcs/box |
| Net Weight | 484 g | 3.9 kg |
| Gross Weight | 745 g | 6.4 kg |
| Size | 30.6×11×9.5 cm | 32×24×40 cm |

QUALITY ASSURANCE

The factory has already obtained the certification of ISO9001 Quality System. Each product has been strictly tested (tests include transmission power, sensitivity, power consumption, stability, aging, etc.).
Warranty Period: 12 months from the date of shipping (other accessories excluded).

DECLARATION

Statement of Rights:

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