

**Product Manual**

# Radar Sensors

**Personnel Presence Sensor** FS-RDN312

**Smart Fall Detector** FS-RDN362

**Vital Signs Monitor** FS-RDN382

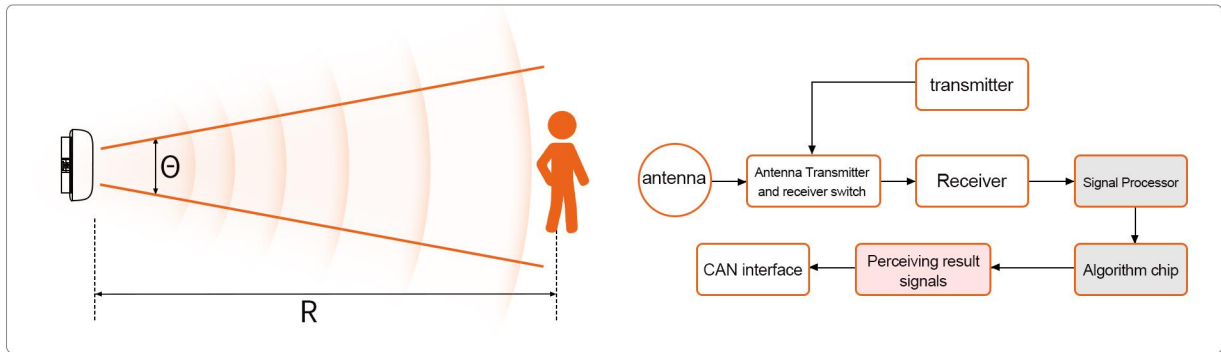


# Core Technology

## Millimeter Wave Radar Technology

### Technical Principles

The core of the millimeter wave radar technology principle is to accurately measure the target distance, speed and angle by emitting millimeter wave electromagnetic waves and analyzing the reflected signals. Its core mechanism includes frequency modulated continuous wave (FMCW) signal processing, Doppler effect and phase difference calculation, combined with high-precision hardware system to achieve environmental perception.



### Technical Features

#### 1. High-Precision Person Detection

Based on 60GHz FMCW technology, it offers high precision, strong penetration, and anti-interference capabilities. It enables presence sensing, fall detection, and vital sign monitoring. This contactless solution eliminates the need for image capture, ensuring both privacy protection and safety.

#### 2. All-weather environmental adaptability

Millimeter wave radar is not affected by environmental factors such as light, dust, and temperature. It can work stably under complex conditions such as darkness, strong light, and smoke, ensuring the continuity and accuracy of data collection.

#### 3. Non-contact privacy protection

The device does not collect video images, but only perceives human activities through radar signals to avoid invading personal privacy. It is particularly suitable for places with high privacy requirements, such as bathrooms, bedrooms, and nursing homes.

#### 4. Intelligent algorithm support

Enhance target recognition capabilities, reduce external interference, improve detection accuracy, and adapt to a variety of complex scenarios.

### Technical Highlights

#### 1. High-frequency millimeter-wave radar technology

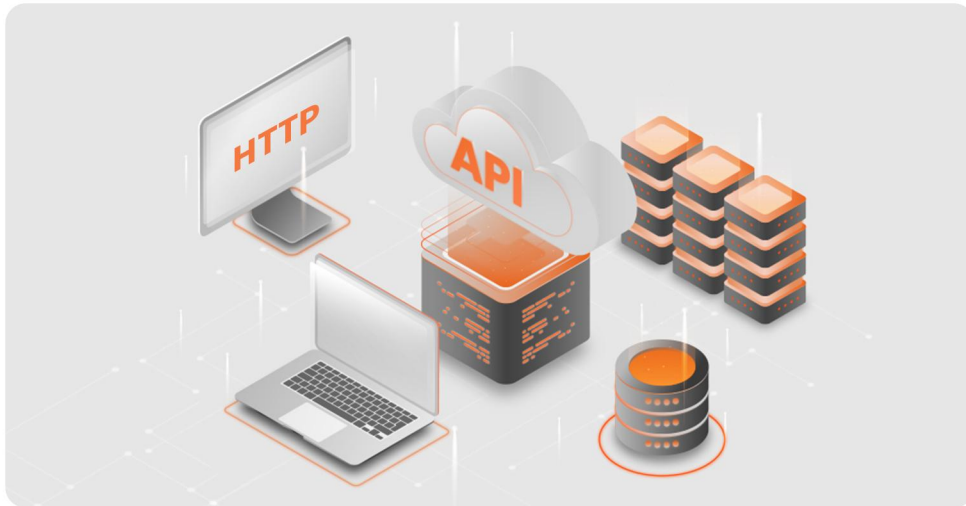
Adopt high-frequency millimeter-wave radar to improve detection accuracy and response speed, and adapt to a variety of application scenarios.

#### 2. Radar-vision fusion technology

Combining radar and video technology, it provides more comprehensive scene perception capabilities and improves the intelligence level of the system.

## Development Docking

Provide API protocol documents. Third parties with development capabilities can develop and analyze based on the provided protocol documents.



## Privacy Protection

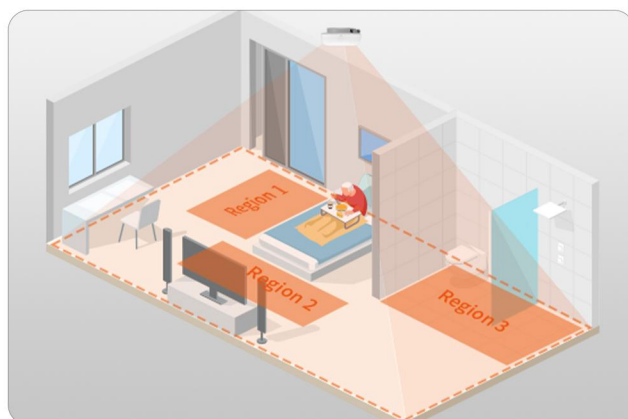
Millimeter-wave radar technology offers inherent privacy advantages in human perception and statistics. It transmits and receives electromagnetic waves in the millimeter-wave band to detect information such as the distance, speed, and angle of an object. It does not rely on optical imaging and cannot capture external features such as faces, clothing, skin color, or facial expressions. Ultimately, it outputs only anonymous data, compliant with GDPR.



# Product Features

## Personnel Presence Sensor FS-RDN312

Provides high-precision, low-latency human presence sensors to help you quickly integrate and develop.



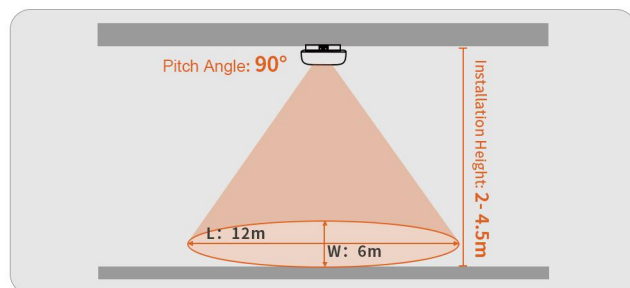
## Precise Personnel Monitoring

It supports presence/absence detection and regional detection, and can set up 4 detection areas.



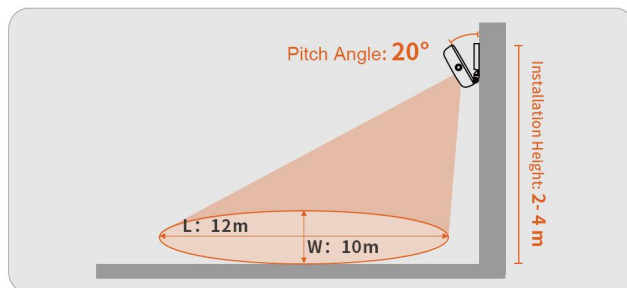
## Wide Area Coverage

Adopting 60GHz millimeter-wave radar technology, it supports detection of people sitting still, moving slightly, and in motion.



## Ceiling Mount

The installation height is 2m ~ 4.5m, and the maximum coverage range is 12m \* 6m.



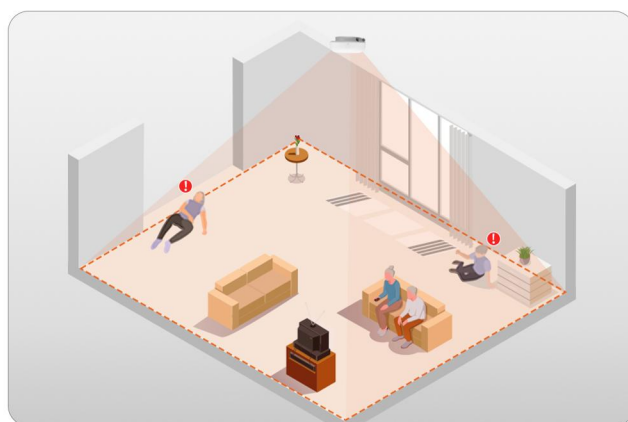
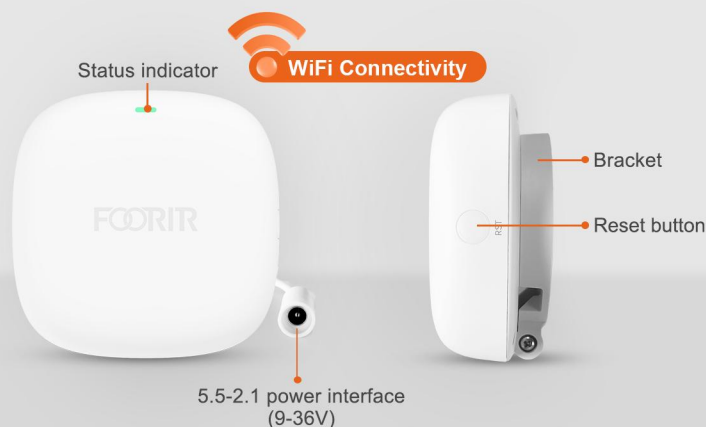
## Wall Mount

The installation height is 2m ~ 4m, and the maximum coverage range is 12m \* 10m.

# Product Features

## Smart Fall Detector FS-RDN362

Provide high-precision intelligent fall detectors to help you quickly integrate and develop.



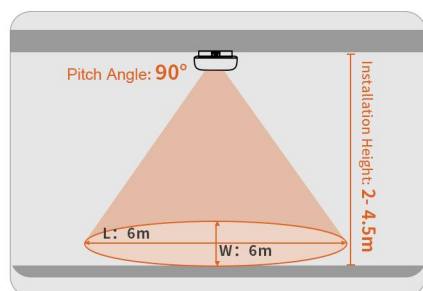
## Accurate Fall Detection

Supports fall detection in situations where multiple people are present, with a maximum of 6 detection targets.



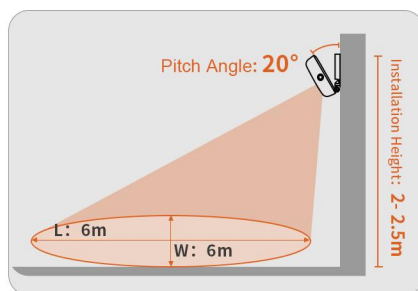
## Wide Area Coverage

Using 60GHz millimeter-wave radar technology, it supports functions such as presence detection, standing detection, fall recovery, sedentary reminder, and sitting-fall pattern recognition.



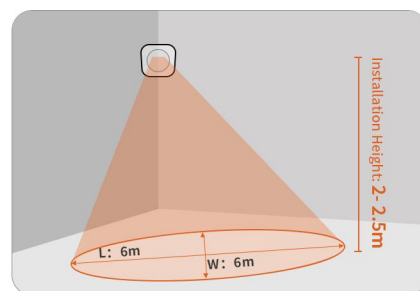
## Ceiling Mount

The installation height is 2m~4.5m, and the maximum coverage area is 6m\*6m.



## Wall Mount

The installation height is 2m~2.5m, and the maximum coverage area is 6m\*6m.



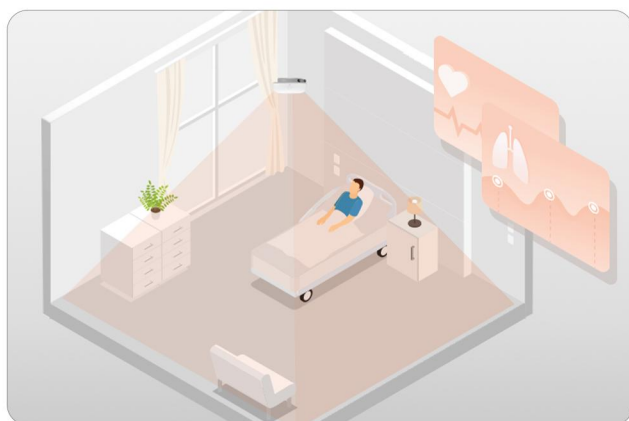
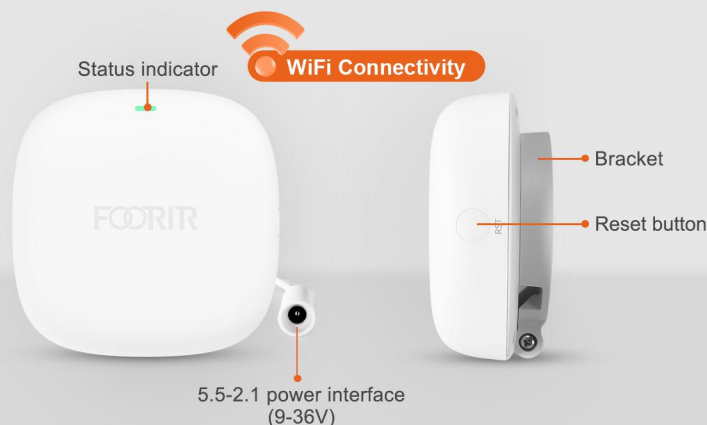
## Corner Mount

The installation height is 2m~2.5m, and the maximum coverage area is 6m\*6m.

# Product Features

## Vital Signs Monitor FS-RDN382

Provide high-precision vital signs monitors to help you quickly integrate and develop.



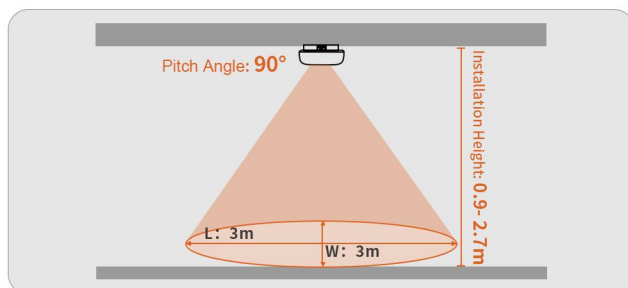
## Accurate Vital Sign Monitoring

Supports breathing and heart rate monitoring, HRV heart rate variability data monitoring, and apnea detection and number statistics.



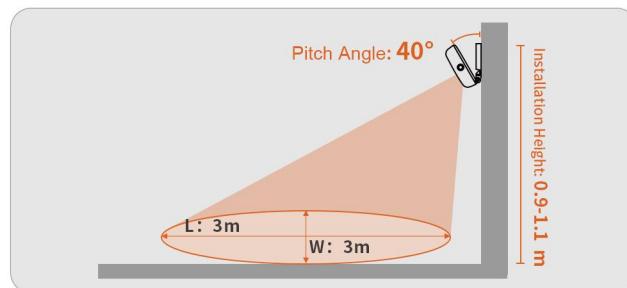
## Wide Area Coverage

It uses 60GHz millimeter-wave radar technology to support in-bed and out-of-bed status monitoring, as well as body movement detection.



## Ceiling Mount

The installation height (from the bed surface) is 0.9m~2.7m, and the maximum coverage area is 3m\*3m.



## Wall Mount

The installation height (from the bed surface) is 0.9m~1.1m, and the maximum coverage range is 3m\*3m.

## Applicable Scenarios

Utilizing 60GHz millimeter-wave radar technology, it achieves high-precision detection and wide coverage, enabling real-time monitoring of personnel status in complex environments. It is highly adaptable to various environments, eliminates the need for identity verification, and strictly protects personal privacy. It is widely applicable in nursing homes, single-family homes, home health management, smart healthcare, hospital wards, wellness communities, educational institutions, school dormitories, public restrooms, smart buildings, factories, and industrial parks.



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