Human Fall Alarm and Voice Emergency Call Radar Sensor

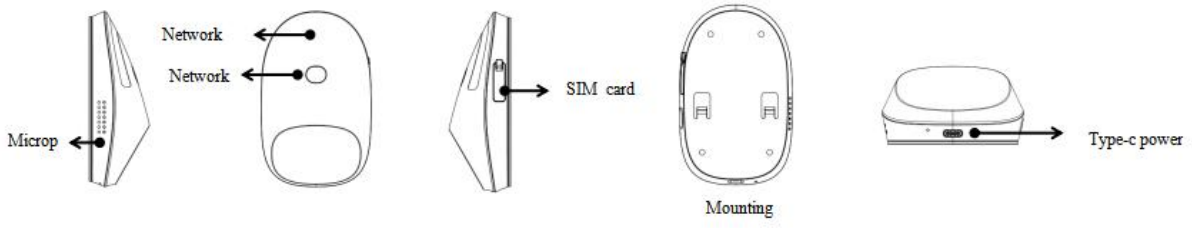
Product Introduction

The FDV6-W Human Fall Detection Sensor utilizes 60 GHz mmWave radar technology to accurately detect human motion and posture. Combined with advanced radar algorithms and intelligent application logic, it can reliably identify fall events and prolonged stationary presence within the monitored area. Featuring stable performance, strong resistance to interference, and privacy-preserving detection, the FDV6-W is well suited for elderly care, healthcare, and security applications. Event notifications and device status are transmitted over a **2.4 GHz Wi-Fi** network.

Functions

1. Supports multiple alarm types, including fall detection and prolonged stationary presence detection, to meet a variety of application requirements.
2. The fall alarm delay time is configurable.
3. The prolonged stationary presence alarm delay time is configurable.
4. Supports multiple alarm notification methods, including platform notifications, WeChat notifications, phone calls, and SMS messages.
5. Built-in self-diagnostic function to indicate the operating status of the device.
6. Supports communication fault indication between the device and the monitoring center.
7. Supports both local and remote signal strength indication.

Product Photo



*This product must be used with an MQTT server.

*Note: The enclosure is shared across multiple product models. Therefore, features such as SIM card slot may be present but are not applicable to this product.

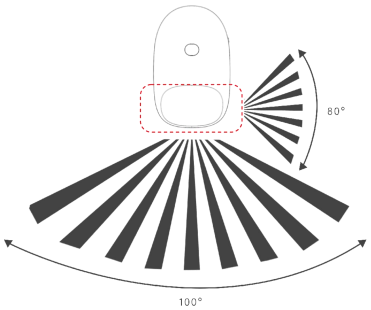
Installation

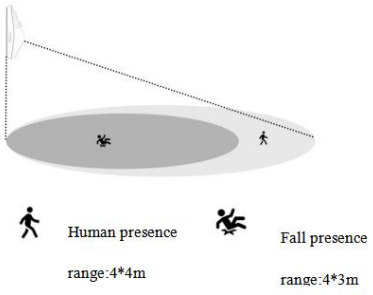
1. Installation

1) Secure the mounting bracket to the wall using the supplied screws. Align the device with the slots on the mounting bracket and snap it into place. Ensure that the bracket is firmly installed and the device is securely attached without any looseness.
2) Install the device with the detection surface tilted downward. The recommended installation height is **1.8 m**, with an allowable range of 1.6–2.4 m. Mount the device at the center of the detection area to ensure coverage of the primary activity zone.
3) The radar is sensitive to slight movements within the detection area. To ensure optimal detection performance, do not install the device in locations exposed to vibration or near sources of continuous movement, such as range hoods, exhaust fans, running water, or air conditioning vents. The device should also be installed as far as practical from other moving objects.
4) After selecting a suitable installation location, connect the power adapter to a power outlet, and then plug the USB connector of the device's power cable into the power adapter. Power on the device and complete the Wi-Fi network configuration. For detailed network connecting instructions, refer to the *FDV6-W Wi-Fi Provisioning And Voice Guide*. Once the network configuration is complete, connect the device to the mqtt server.

2. Detection Range

The horizontal angle and pitch angle of the red frame are 100° and 80° respectively. The human presence detection range is approximately 4m*4m, and the static residence alarm and fall detection range is 4m*3m.





Key Parameter Configuration

Device parameters can be configured remotely through the management platform or via MQTT.

For MQTT configuration details, refer to the *FDV6-W Data Communication Protocol Specification*.

1) Installation Height

Set this parameter to match the actual installation height of the device.

Unit: cm

Default: 180 cm (recommended)
Range: 180–240 cm

2) **Fall Duration**
A fall event is reported when the detected fall duration reaches the configured threshold.
Unit: s
Default: 5 s
Range: 0–65,535 s

3) **Stationary Presence Duration**
A prolonged stationary presence event is reported when the stationary duration reaches the configured threshold.
Unit: s
Default: 120 s
Range: 60–65,535 s
Recommended Setting: 1,800 s (30 minutes) or longer for normal applications.

LED Indicator Status and Performance Breakdowns

1. LED Indicator

Entering Wi-Fi provisioning mode	Red LED flashes every **500 ms** (**90 s timeout**)
Reset button pressed	Red LED remains **ON**
MQTT server connection successful	Red LED turns **ON** for 1 second and then turns OFF
Device connected to the network and operating normally	Red LED remains OFF
Network configured successfully, but disconnected from the server or network	Red LED remains **ON**

2. Performance Breakdowns

Name	Performance breakdowns
Human Fall Alarm Sensor FDV6-W	1、Surface damage due to structure or material factors 2、Indicator lamp is not working 3、Failure of network connection button 4、Human presence detection failed

Product Parameters

Product Name	Human Fall Alarm and Voice Emergency Call Radar Sensor
Product Model	FDV6-W

Size	106*67*35mm
Radar frequency	61GHz～61.5GHz
Installation Method	Wall-mounted (Detection Surface Facing Downward)
Installation Height	1.8 m above the floor
Human Presence Detection Range	Up to 4 m × 4 m (approximately 16 m²)
Fall Detection Range	Up to 4 m × 3 m (approximately 12 m²)
Prolonged Stationary Presence Detection Range	Up to 4 m × 3 m (approximately 12 m²)
Detection Angle	Horizontal: 100°; Vertical: 100°
Power Input	5V/2A，Type-C
Wireless Protocol	2.4G Wifi
Working Temperature	-10℃~+60℃
Working Humility	0 ~ 95% RH, Non-condensing

Precautions

1、This radar is a non-contact sensing device. Before measuring respiration and heart rate, the radar must first locate and lock onto the target, then collect and process the corresponding vital sign signals. For optimal performance, the target should remain within the effective detection range and stay as still as possible during measurement. Continuous movement may prevent the radar from maintaining target lock, resulting in reduced measurement accuracy or unsuccessful detection.

2、The detection range depends on the target's radar cross-section (RCS) and environmental conditions. As a result, the effective detection distance may vary depending on the target and surrounding environment. Minor variations in the detection range are normal.

3、Respiration and heartbeat signals are extremely weak, low-frequency biological signals. To obtain reliable measurements, the radar requires a period of signal accumulation and processing. During this process, environmental factors or target movement may affect the measurement, and occasional detection failures are considered normal.

4、Do not use this product in areas with no network signal or poor signal strength. An unstable network connection may affect product functionality and data reporting.

5、Choose the installation location carefully. Avoid installing the device near objects that generate vibration or continuous movement, such as air conditioners, electric fans, curtains, or large leafy plants. Also avoid placing large reflective objects within the radar's detection area, and do not expose the device to direct sunlight.

6、This product is designed to monitor human presence, respiration, sleep, and related events. However, it cannot guarantee the detection of every event under all conditions. For your safety, always exercise appropriate caution and do not rely solely on this product.

7、This product is intended for indoor use only. Keep the device clean and free from dust, dirt, or other contaminants, as these may reduce sensitivity and detection accuracy. If cleaning is required, wipe the device with a soft, dry cloth. Do not use corrosive cleaning agents or solvents. Ensure that no objects obstruct the front of the device, as obstructions may affect detection

performance.

FAQ

1. Sources of Interference

As an electromagnetic sensing device, the radar may detect movement from non-human objects, which can lead to false detections. Movement of metal objects or liquids may also affect detection accuracy. Common sources of interference include:

- Electric fans
- Pets moving close to the radar
- Swinging metal blinds or curtains

To minimize false detections, the installation location and detection angle should be carefully planned.

2. Objects That Do Not Normally Affect Detection

Millimeter-wave radar signals can penetrate non-metallic materials such as clothing, curtains, thin wooden panels, and glass. Depending on the application, the installation angle and mounting position should be selected to achieve the desired detection performance.

3. Potential Sources of Interference

For reliable human presence detection, the radar should not face an air conditioner directly. The movement of the air conditioner's internal fan or motor may cause false detections. Install the radar so that it does not face the air conditioner directly, or position it in the same direction as the airflow rather than directly opposite the air outlet.