Yealink RoomSensor Deployment Guide

The primary purpose of this document is to guide you through correctly deploying the RoomSensor to prevent false or missed detection caused by incorrect installation. The main content includes RoomPanel pairing, PIR detection principles, deployment methods, installation precautions, etc. At the same time, this document provides recommended deployment methods for conference rooms of different sizes and types, and users can adjust them according to the actual situation on site.

1 Pairing with RoomPanel

The RoomSensor can be paired after both RoomPanel and RoomSensor are powered on. For information on how to power on, please refer to RoomSensor Quick Use Guide/RoomPanel Quick Use Guide/RoomSensor Deployment Video.

1.1 Pairing with RoomPanel

Procedure

1. Tap ⚙ on the main interface and enter the Settings page.
2. Tap **Sensor (Default admin password: 0000)** > **Add** and search for nearby sensors.
3. Select the sensor and Tap **OK** to complete the pairing.

   Information about the paired RoomSensor will appear on the screen.
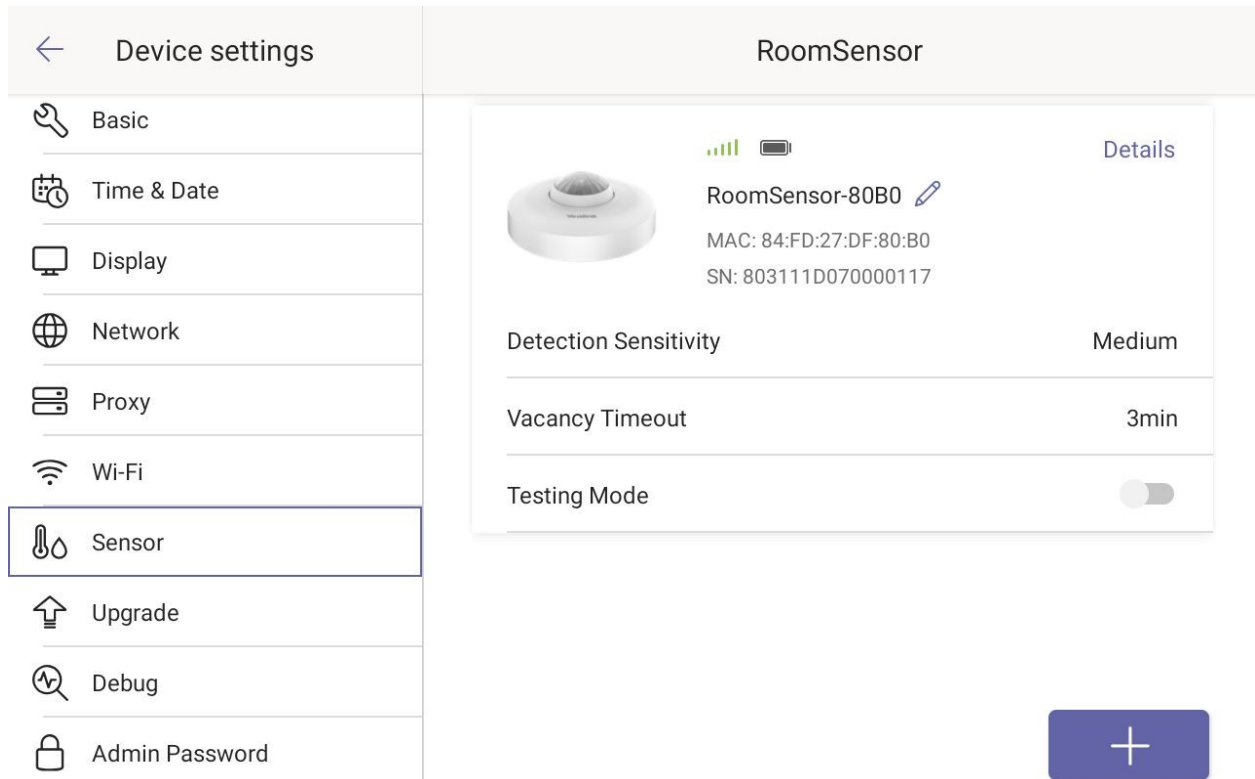
2 PIR Technology Principle

RoomSensor is a temperature-sensitive sensor that uses PIR pyroelectric infrared technology to process data. Any object higher than the absolute temperature (-273 ℃) in the natural world will produce an infrared spectrum. The human body has a constant body temperature, which is generally about 37°C, and will emit a specific wave of infrared light of about 10um. Infrared rays are enhanced by Fresnel lens (selectively passing through effective human infrared bands to minimize the interference of other infrared bands) and then concentrated in pyroelectric elements. This element will lose charge balance when receiving the change of human infrared radiation temperature and release charge outward. Subsequent circuits can generate alarm signals after detection and processing. Therefore, when nobody moves, the sensor only senses the ambient temperature; When a human body moves, the sensor senses the difference between the body temperature and the ambient temperature, generating an alarm signal. When the human body does not move after entering the detection area, the human body temperature will be regarded as the ambient temperature and judged that the temperature is unchanged so that the PIR sensor can detect the activities of the human body or animals.
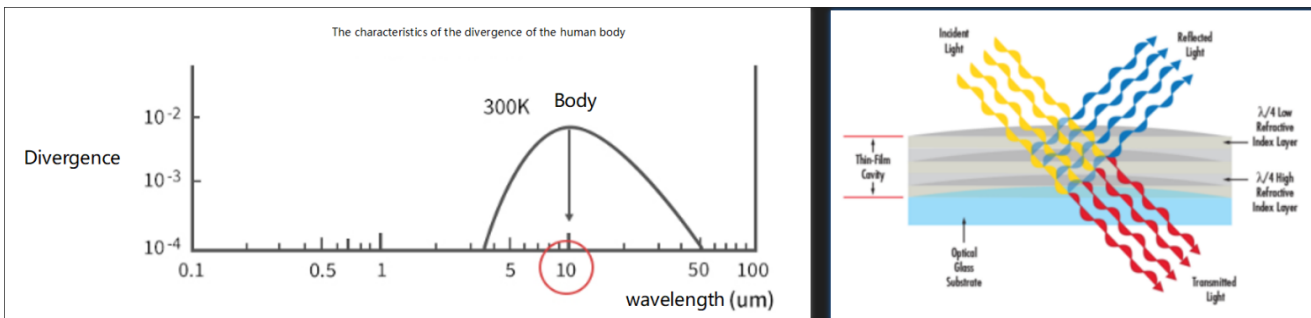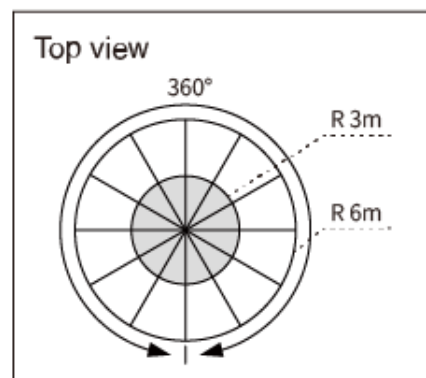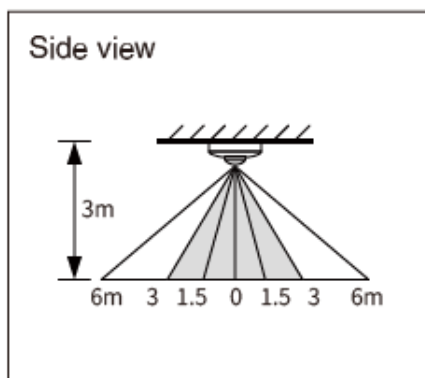

2.1 RoomSensor Detection Range

According to the different deployment methods of top-mounted and side-mounted installation, the specific detection range is:

Top-mounted: at an installation height of 3 meters, the coverage area is

- Large motion: a circle with a radius of 6 meters
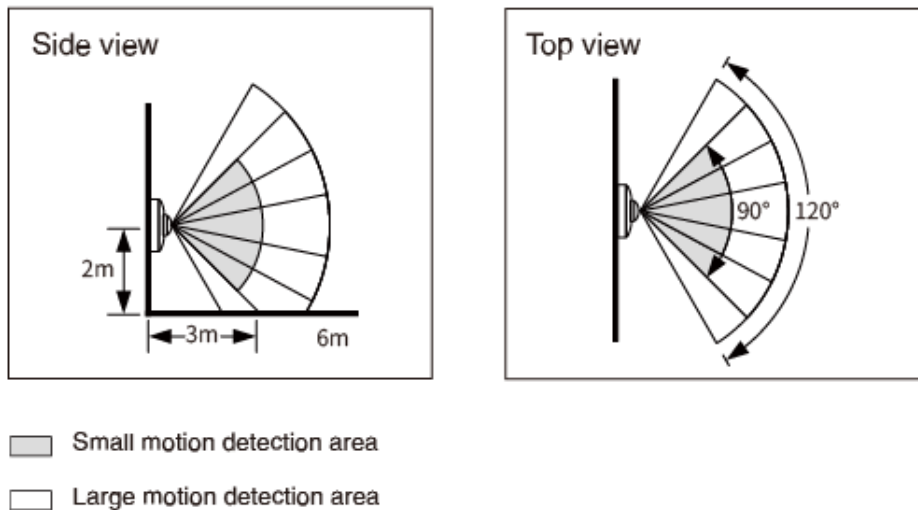- Small motion: a circle with a radius of 3 meters

Large motion detection and small motion detection coverage are roughly defined as follows:

Deployment Methods	Sensitivity	Small Motion			Large Motion		
	The distance between the person and the vertical center of the sensor	Type on the keyboard	Flip book	Drink water	Rotation	Stand up	Walk
Top-Mounted	1 m	√	√	√	√	√	√
	2 m		√	√	√	√	√
	3 m			√	√	√	√
	4 m				√	√	√
	5 m					√	√
	6 m					√	√

Side-mounted: at the height of 2 meters above the ground, the coverage area is

- Large motion: 120 degrees, 6-meter distance
- Small motion: 90 degrees, 3-meter distance

Small motion detection area
Large motion detection area

Large motion detection and small motion detection coverage are roughly defined as follows:

Deployment Methods	Sensitivity	Small Motion			Large Motion		
	The distance between the person and the vertical center of the sensor	Type on the keyboard	Flip book	Drink water	Rotation	Stand up	Walk
Side-Mounted	1m	√	√	√	√	√	√
	2 m		√	√	√	√	√
	3 m		√	√	√	√	√
	4 m				√	√	√
	5 m				√	√	√
	6 m				√	√	√

Recommended installation

Top-Mounted Installation: 4 m × 4 m conference table (installed in the center of the ceiling at the height of 2.5m from the ground);

Side-Mounted Installation: 3 m from the conference table in front (installed at the height of 2 m from the ground).
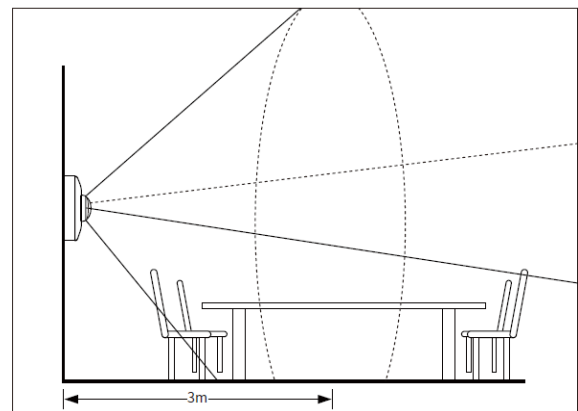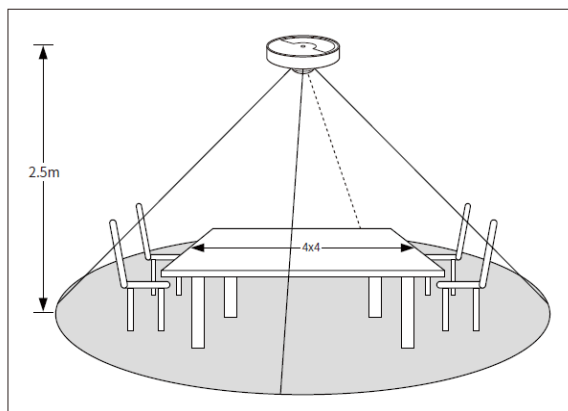

2.2 PIR Blocking Sticker

To prevent accidental detection of people in the corridor outside the door, you need to paste PIR blocking stickers for range shielding, and each sticker can cover about 30° range. Note that the stickers should only cover the top half of the lens (to prevent the entire sticker from affecting the detection of the entrance area of the conference room), and it can be adjusted according to the on-site situation.
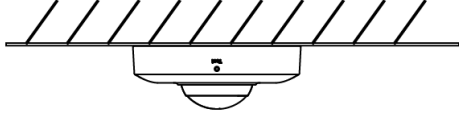
A：Paste area

B：No need to paste area
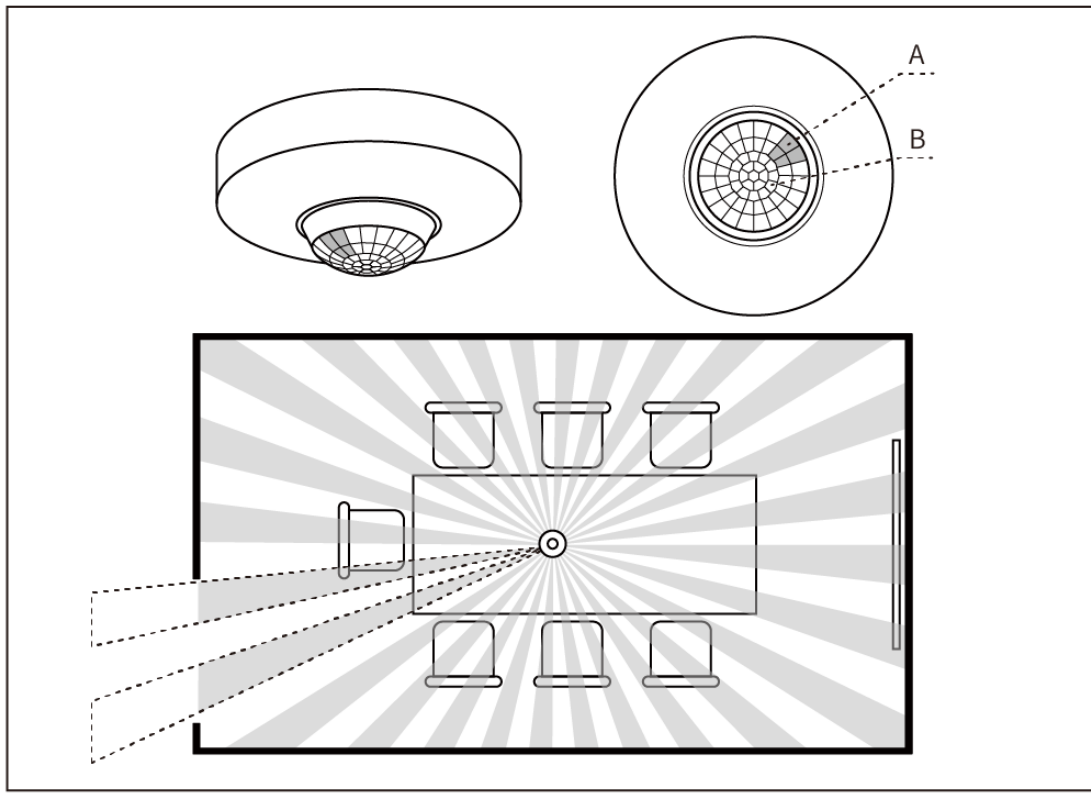
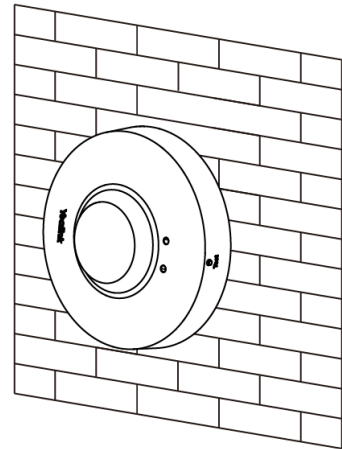# 3. Deployment Methods

RoomSensor supports two deployment methods: top-mounted and side-mounted.

Top-mounted   Side-mounted

Top-mounted advantages:

1. The conference room has a wider detection coverage area, and it is not easy to be blocked by obstacles in the space and cause detection blind spots.
2. Concealed installation returns you to a clean and tidy environment.

Side-mounted advantages:

1. The deployment is more directional, it will not detect the area outside the target space, and the coverage is more accurate.
2. Side-mounted installation can be selected when the ceiling is covered by equipment such as projectors and chandeliers.
3. No dead detection angle.

We recommend using the top-mounted method. The top-mounted method covers a broader area but has a lower missed detection rate than the side-mounted one. For more information about deployment operations, please refer to RoomSensor Quick Use Guide/RoomSensor Deployment Video.

3.1 Small Conference Room

Example 1

Conference room size: 5 m X 5 m

5m

5m
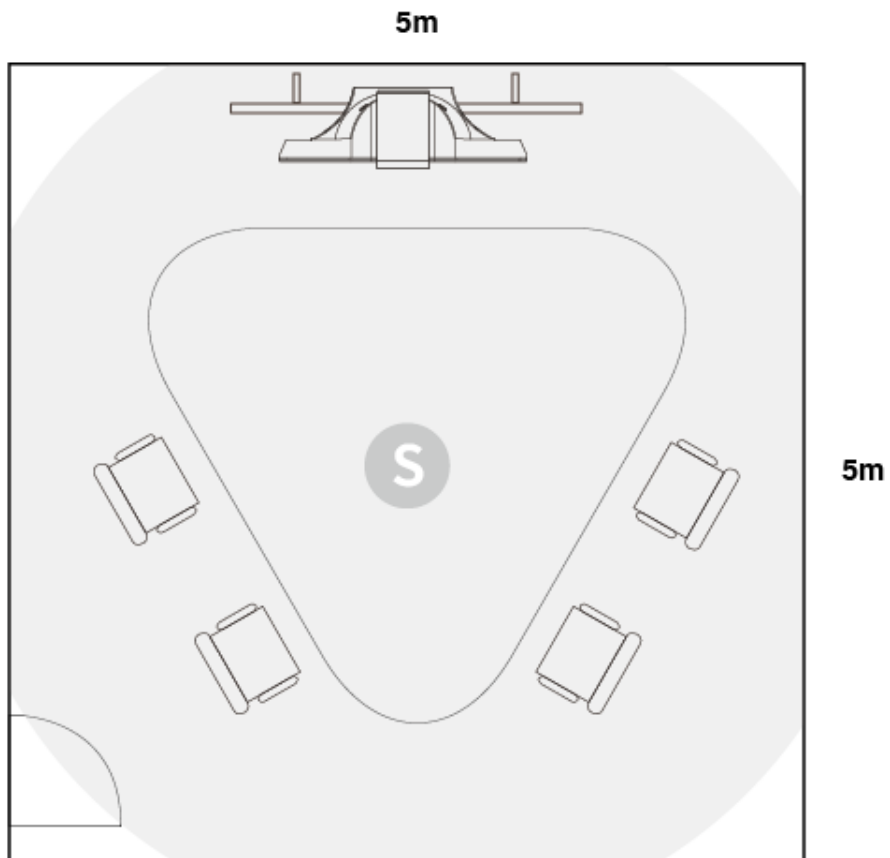
(S) Top mounted sensor

☐ Small motion detection area

This example is for a small conference room, where a sensor can be deployed at the top center of the ceiling. A PIR blocking sticker can be attached to where the sensor faces the conference room door to prevent false detection of people passing in the corridor.

Example 2

Conference room size: 6 m X 5 m

6m

2m

S

3m

5m

1m

3m

2m

3m

S

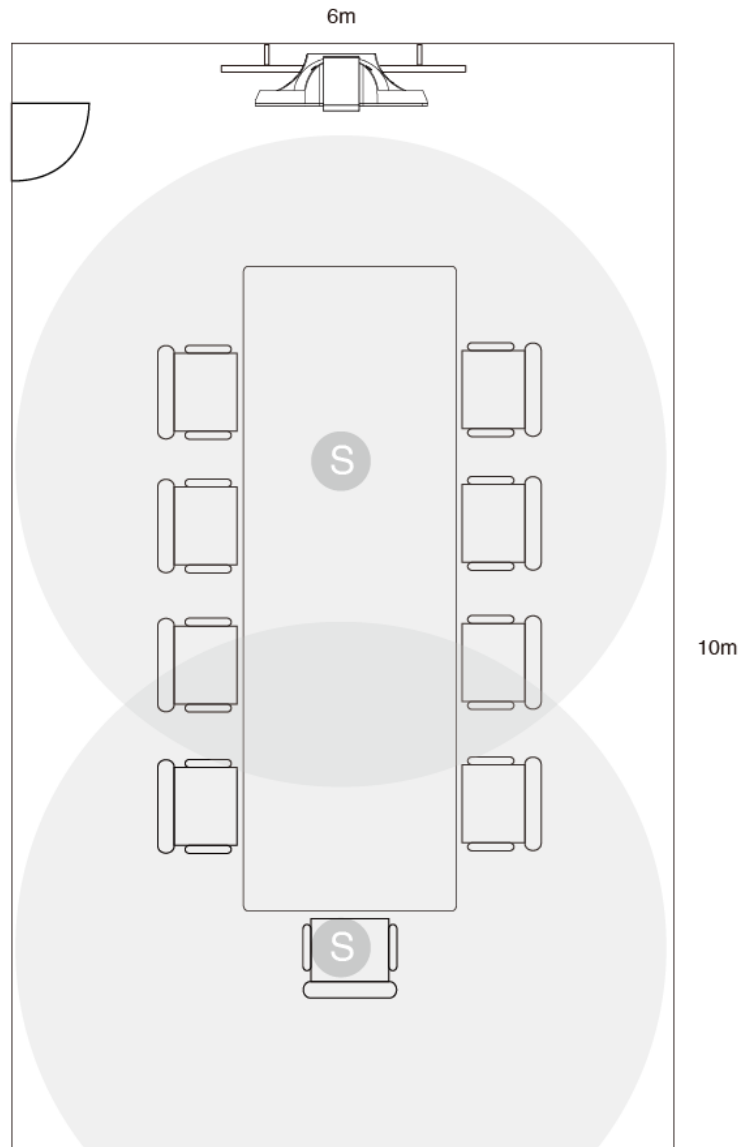| | Side mounted sensor |
| S | Top mounted sensor |
| □ | Small motion detection area |
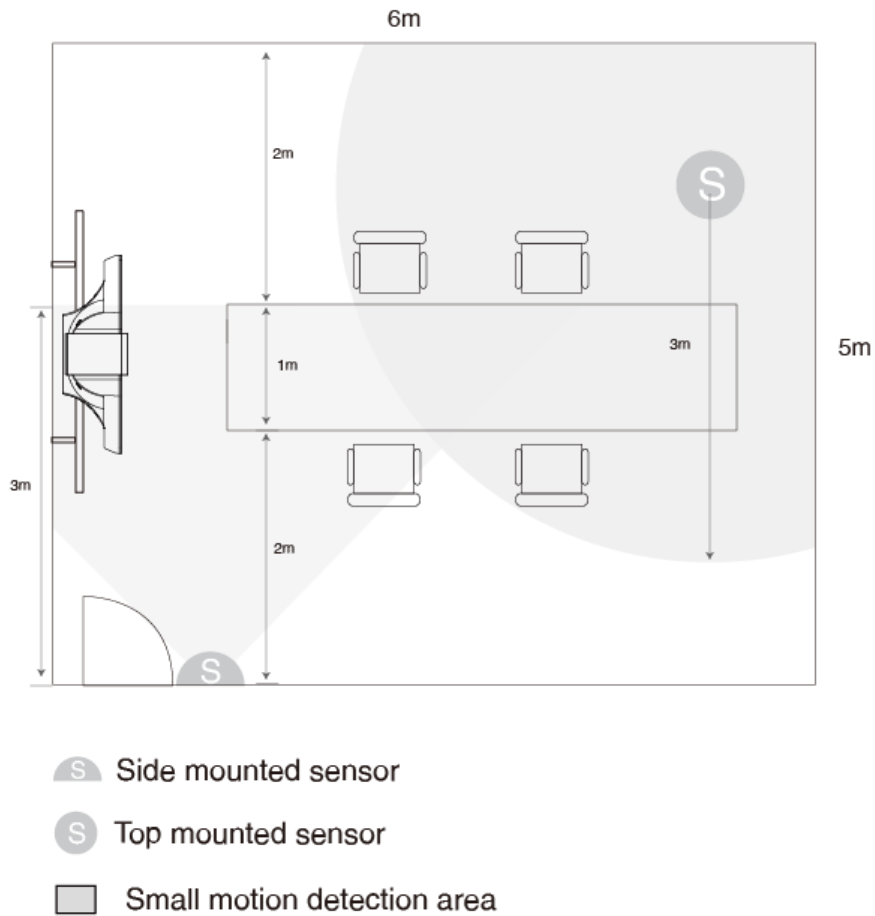
This example is suitable for a small conference room. The sensor is installed on the wall where the door is located (2 meters height is recommended). It will not mistakenly detect the staff in the corridor and can quickly detect the staff entering the room. This side-mounted sensor can cover the entrance, the front part of the table, and the display area in front of the conference room (front obstruction might block the detection as the PIR sensor is linear detection). You also need to install a sensor on the top corner to cover the back half of the table. Therefore, the two sensors can cover all the activity areas in the room.

3.2 Middle Conference Room

Example 1

Conference room size: 6 m X 10 m

S Top mounted sensor

Small motion detection area

This example is suitable for a middle conference room where a projector (or other equipment) does not obstruct the ceiling. Two sensors can be installed on top of the room to detect the entire conference table. PIR blocking stickers can be pasted on the sensor (which can detect the corridor outside the door) towards the conference room entrance to prevent mistakenly detecting the people in the corridor.

Example 2

Conference room size: 6 m X 10 m

6m

10m

(s)	Side mounted sensor
(s)	Top mounted sensor
☐	Small motion detection area

This example is suitable for a middle conference room with ceiling lights, projectors or other obstructions. It is deployed using a mix of side-mounted and top-mounted methods (the PIR sensor is a linear sensor, and detection is cut off when there is an obstruction in front of it). It is necessary to ensure that the sensor's detection can cover the entire activity area of the conference table.

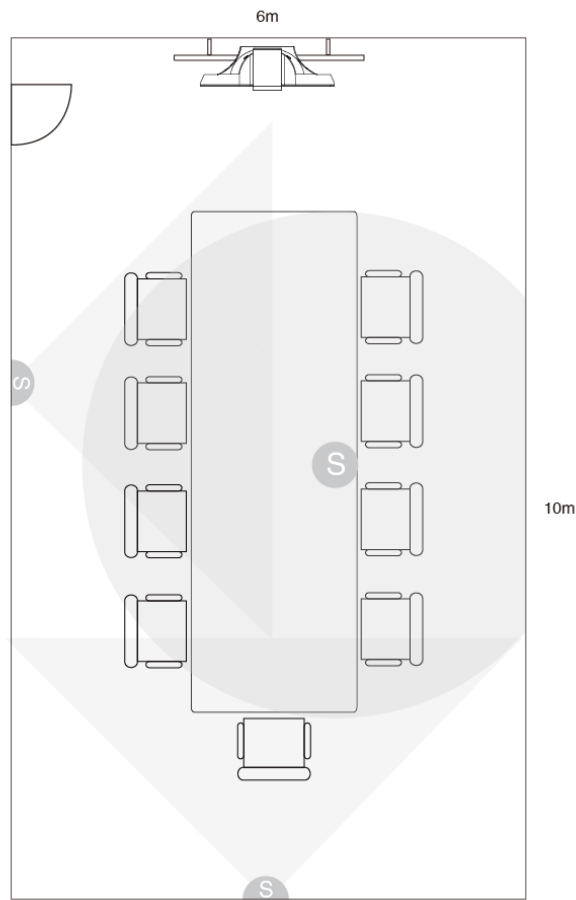## 3.3 Large Conference Room

Example 1

Conference room size: 6m X 15m

6m

15m

S Top mounted sensor

Small motion detection area

This example is suitable for a large conference room. Three sensors are deployed on the top of the conference room to detect the entire conference table. To prevent mistakenly detecting the people in the corridor, PIR blocking stickers can be pasted on the sensor (which can detect the corridor outside the door) towards the conference room entrance.

Example 2

Conference room size: 6m X 10m

6m

15m

S

S

S

S

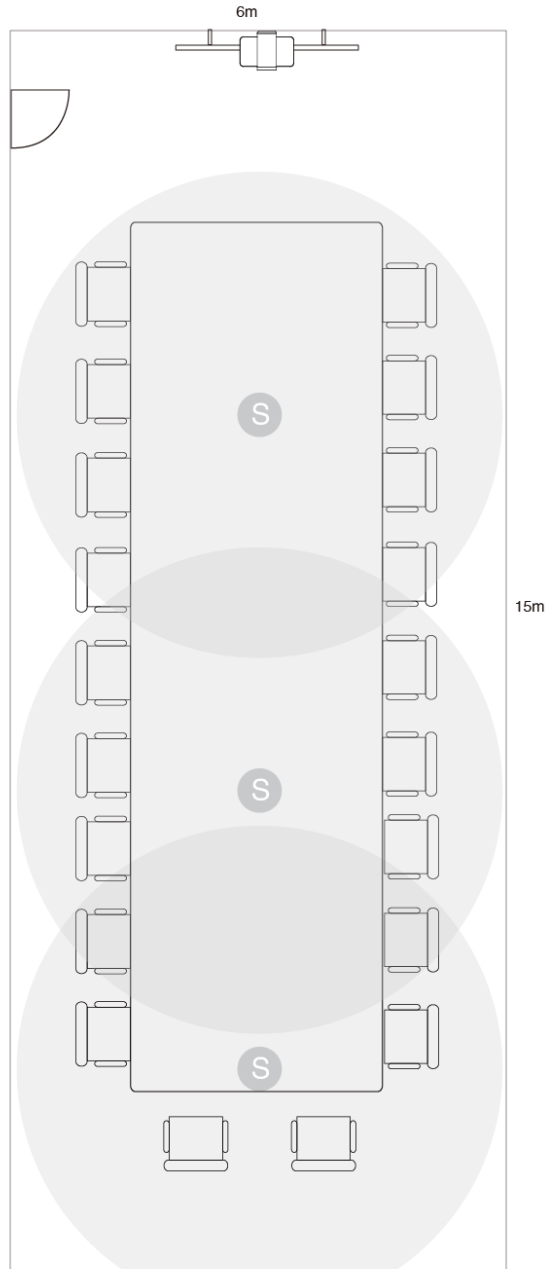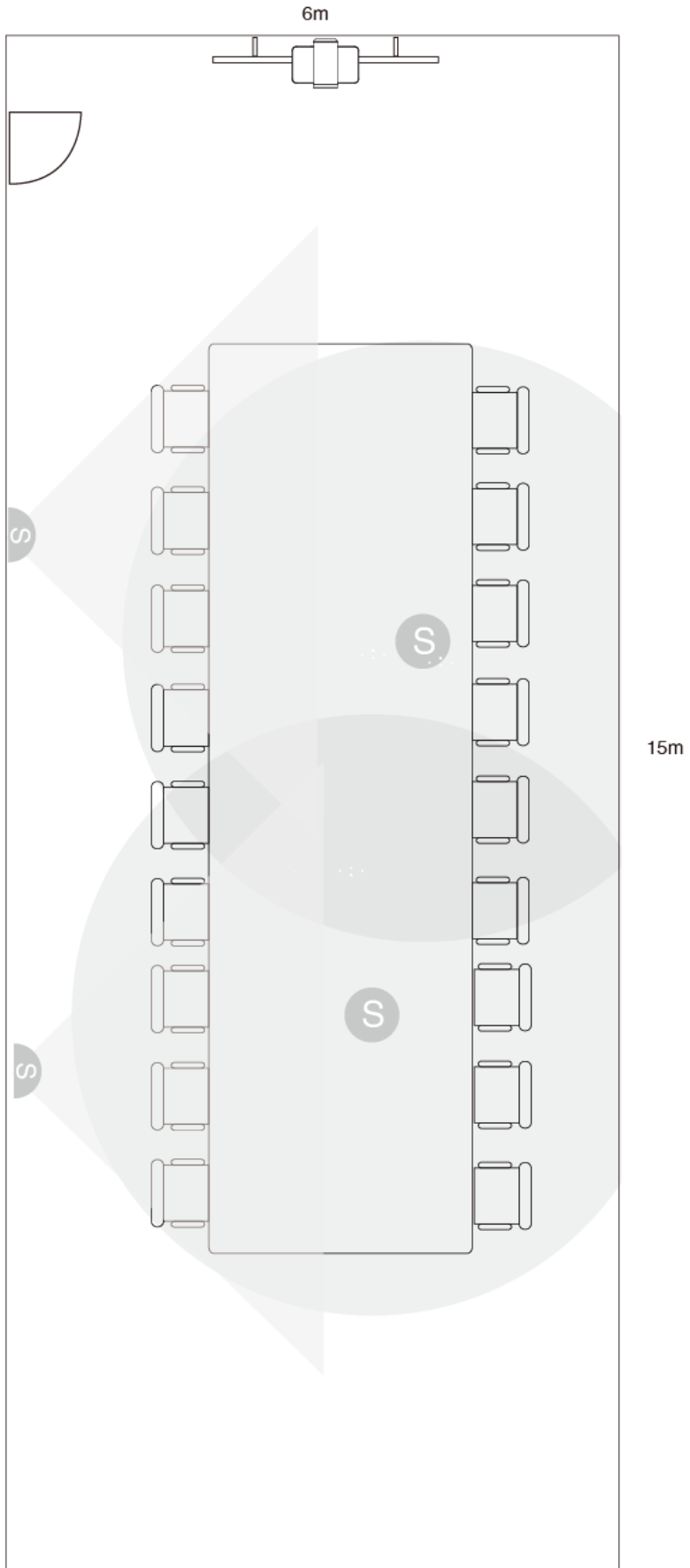S Side mounted sensor

S Top mounted sensor

☐ Small motion detection area

This example is suitable for a large conference room. The two sensors on the left are mounted on top of the wall (the PIR sensor is a linear detector, and detection is cut off when there is an obstruction in front of it) to prevent false detections and ensure coverage of the active entrance area of the table.

3.4 Precautions

3.4.1 Mounting Position

- When deploying multiple sensors in a conference room, the distance between each sensor should be at least 1 meter to avoid interference between the sensors and signal instability.
- The distance between the sensor and the RoomPanel of the conference room should not exceed 14 meters through the wall (due to different wall materials with varying capabilities of shielding for Bluetooth signals, the deployment distance may be different).
- Do not install the sensor near a vent, as vibrations and draughts can affect the sensor's detection.
- High temperatures can affect the sensor's detection sensitivity.
- When other equipment is deployed on the conference room's ceiling, such as projectors, hanging microphones, etc., they may block the sensor. You can choose side-mounted, bypass these devices for deployment or deploy multiple sensors.

3.4.2 Lens Adjustment

The actual installation requires attention to enhance the sensor's accuracy in detecting the state of the room space by adjusting the PIR lens to focus on hot areas of activity, such as conference tables.
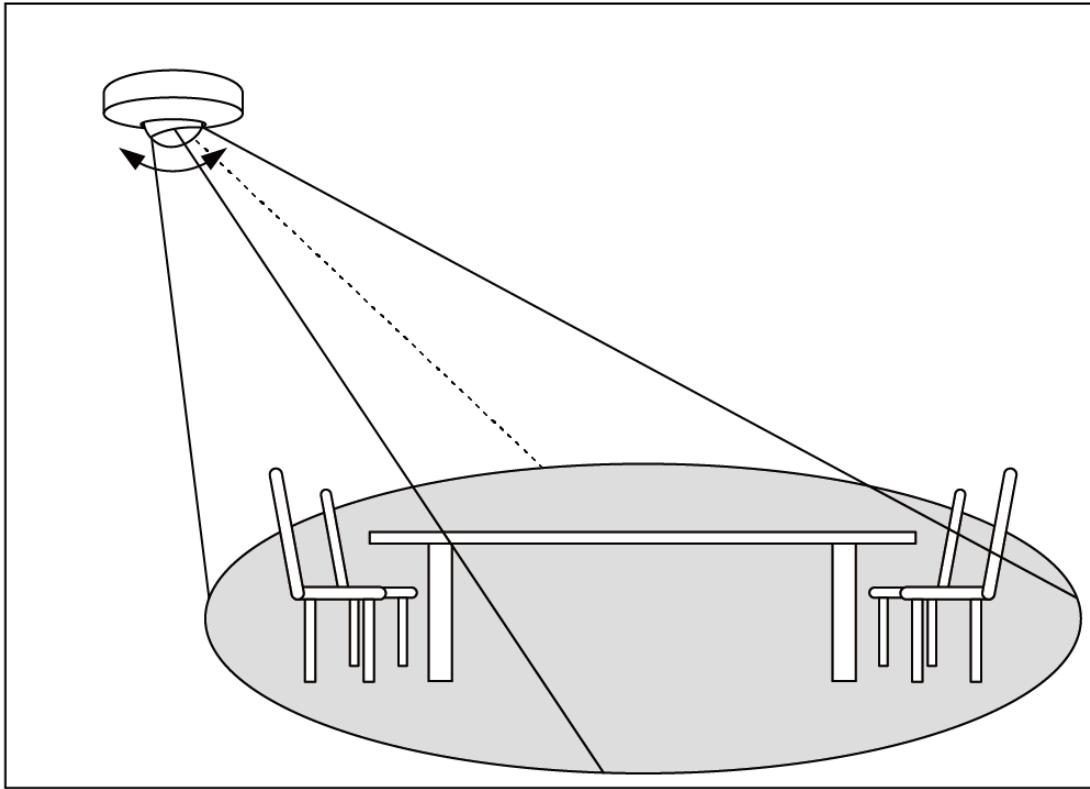
4 RoomSensor Testing

4.1 Test Mode

After installing the RoomSensor, you can check whether the sensor's installation position and angle are appropriate by turning on the sensor's test mode:

- Under normal conditions, the occupancy status light does not come on when the sensor detects the people movement.
- In test mode, when the sensor detects human movement, the occupancy status light will be solid red until no occupancy is detected.

Note: The test mode lasts for 15 minutes. After 15 minutes, it will turn off and automatically switch back to normal working mode.

Occupancy status light
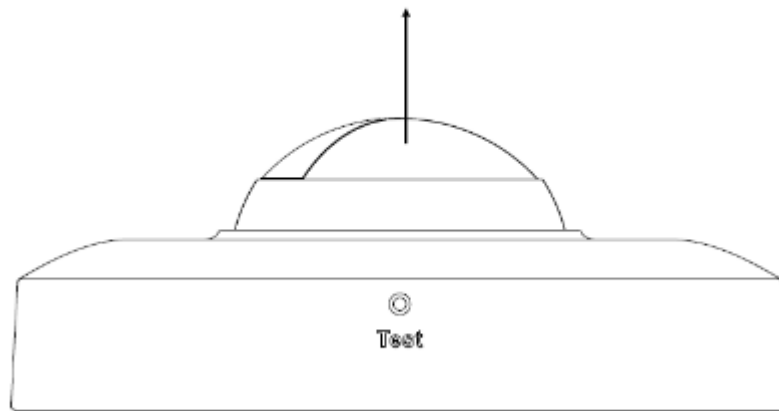
Test

4.1.1 Turning on the Test Mode

Method 1: Press the **Test** key to enter the test mode.

Test

Test Key
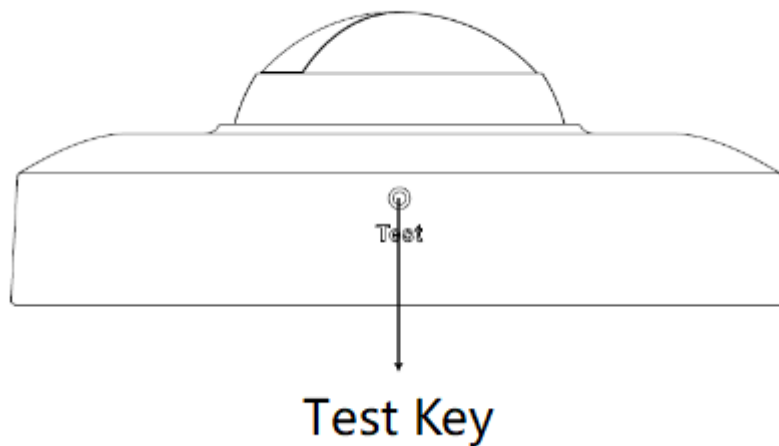
Method 2: If you have paired the sensor with the RoomPanel, go to ⬡ > **Device settings** > **Sensor** (Default admin password 0000) > **Testing Mode**.

Basic

Time & Date

Display

Network

Proxy

Wi-Fi

Sensor

Upgrade

Debug

Admin Password

RoomSensor-80B0 ✎	Details
MAC: 84:FD:27:DF:80:B0	
SN: 803111D070000117	
Detection Sensitivity	Medium
Vacancy Timeout	3min
Testing Mode Remaining Time: 15 Minutes	⬤

+

4.2 Parameter Settings

Yealink RoomSensor adopts the status change reporting mechanism. When the occupancy status changes, the sensor will report the current occupancy status:

• When the occupancy status changes from occupied to unoccupied, the occupancy status will be reported as 0;

• When the occupancy status changes from unoccupied to occupied, the occupancy status will be reported as 1.

4.2.1 Detection Sensitivity

Sensitivity mainly affects the sensitivity to the human body's motion range. The higher the sensor's sensitivity, the smaller the motion range that can be captured, but the easier it is to be interfered with by other external factors and cause false alarms.

On the RoomPanel, go to ⚙ > **Device settings** > **Sensor** (Default admin password 0000) > **Detection Sensitivity**.
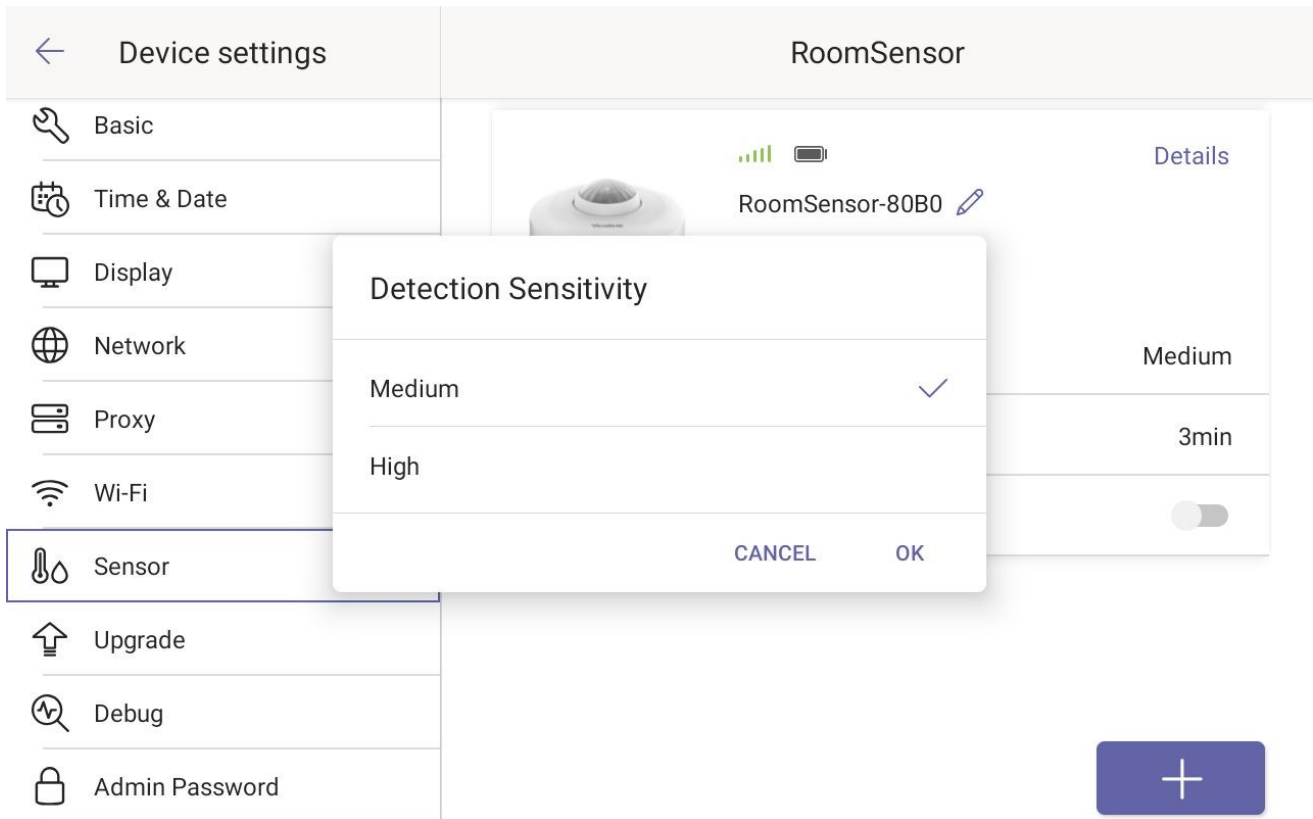
Strategy recommendation:

1. Daily scenarios: Medium sensitivity is recommended, combined with the **Vacancy Timeout** feature to carry out the conference room strategy, ensuring no missed detections.
2. Avoid missed detection scenarios: High sensitivity can be selected to improve the accuracy of recognition of small movements. As the sensor is more sensitive to environmental changes at high sensitivity, it may also be interfered with by external factors to produce false detection (e.g., when the conference room is empty but the conference room is occupied). It is recommended to debug after setting to verify whether the actual effect meets the requirements.

4.2.2 Vacancy Timeout

Vacancy Timeout is the amount of time the sensor waits to take action after no movement is detected. We will set a timeout for the vacancy message in case the sensor sends the wrong message when people leave the room for minutes and then come back or the occupancy sensor misses some motions

For example, when we set the timeout to 3 minutes for a vacancy message, the sensor will wait 3 minutes to send the vacancy message after the last motion is detected (Value=0).

The conference room resources can be automatically released in conjunction with the conference room strategy. And the lighting in the conference room can be turned off in conjunction with it to realize the efficient use of conference room resources and the effect of energy saving and emission reduction.

On the RoomPanel, go to ⬡ > **Device settings** > **Sensor** (Default admin password 0000) > **Vacancy Timeout**.

Basic	
Time & Date	
Display	
Network	
Proxy	
Wi-Fi	
Sensor	
Upgrade	
Debug	
Admin Password	

Vacancy Timeout

3min ✓

4min

5min

10min

15min

CANCEL   OK

Details

Medium
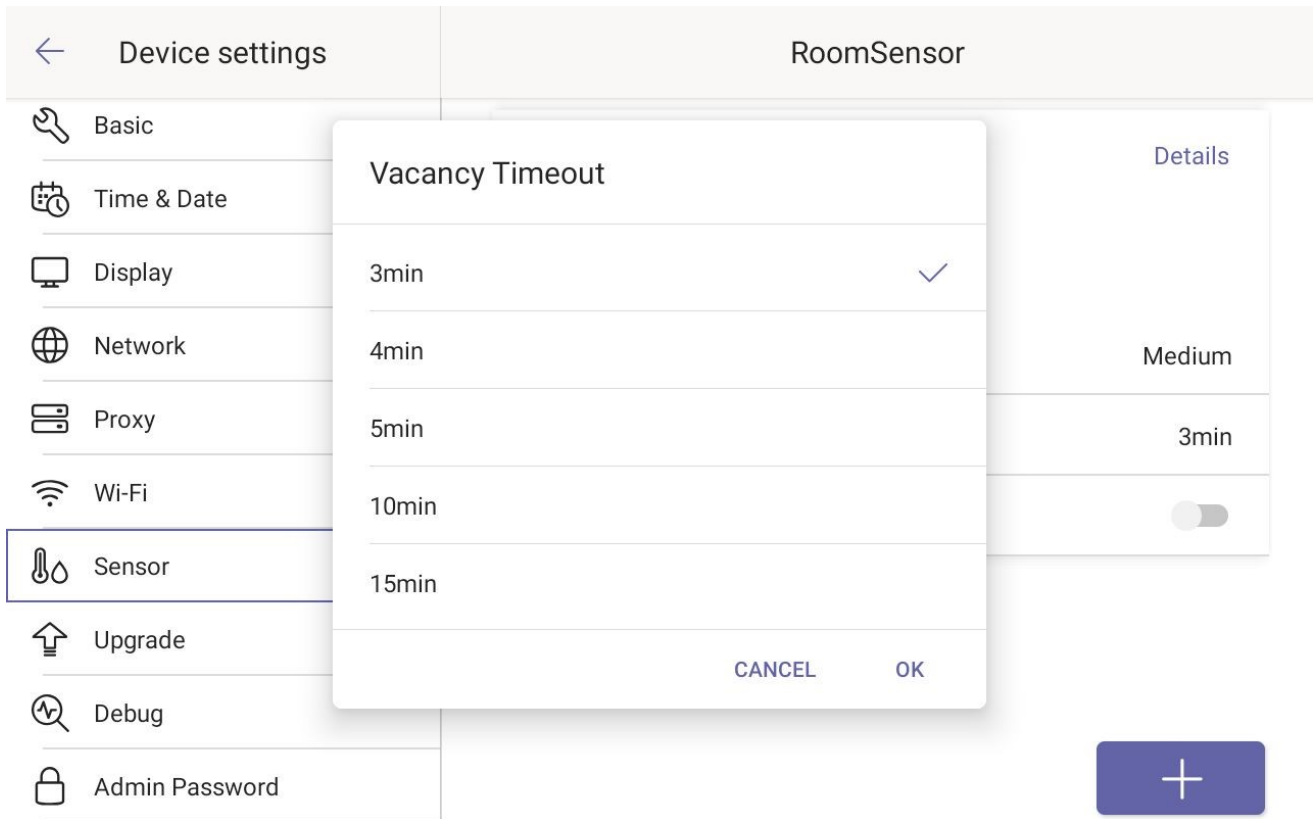
3min

Strategy recommendation:

1. According to different usage environments, it is generally recommended to set the vacancy timeout to at least 3 minutes.
2. If you need to release conference room resources in conjunction with conference room strategy, we generally recommend setting the time to more than 15 minutes to prevent the accidental release of conference rooms as much as possible. (In a meeting, it is impossible for no small movements for 15 minutes in a row).

You can flexibly adjust the vacancy timeout according to your usage environment and strategies.

4.3 Locating RoomSensor

After locating, the corresponding sensor will flash a red light to inform the location information of the sensor.

On the RoomPanel, go to ⬡ > **Device settings** > **Sensor** (Default admin password 0000) > **Locte RoomSensor**.
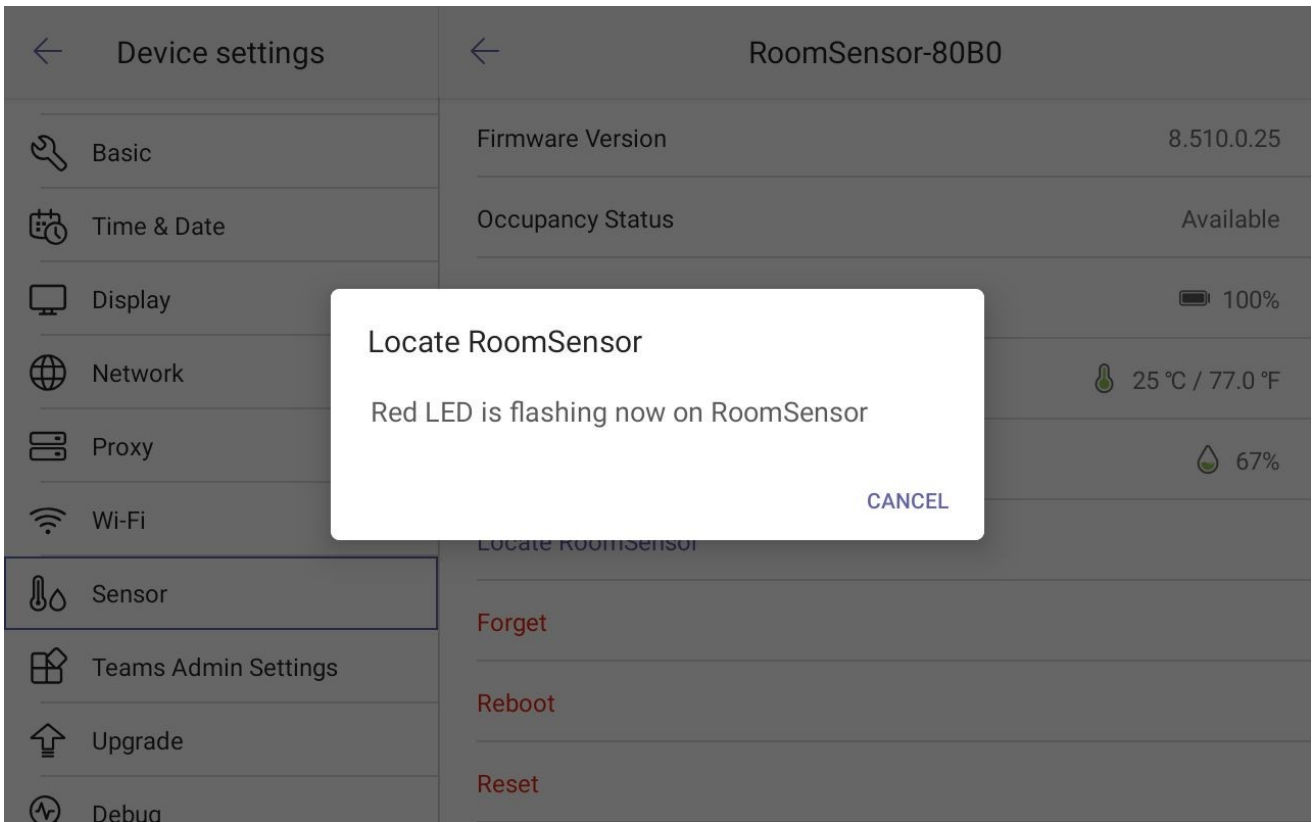
4.4 Other Settings

RoomSensor supports common operations such as unbinding with the RoomPanel, rebooting, and resetting, and can synchronize the numerical information of temperature and humidity detected(temperature accuracy ±0.3°C, humidity accuracy ±2%).
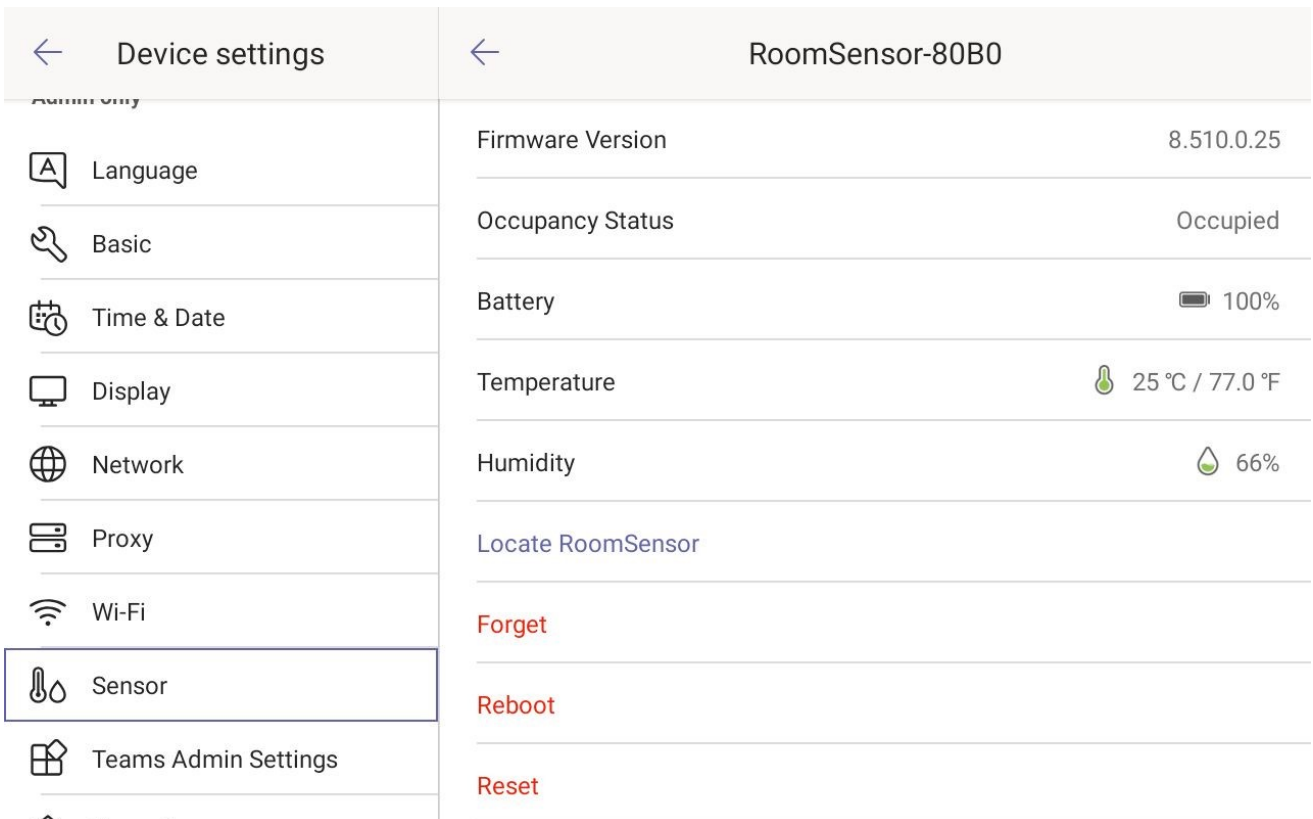
5 Upgrading

5.1 Upgrading on the RoomPanel

On RoomPanel, you can complete the device upgrade through manual upgrade and automatic upgrade.

On the RoomPanel, go to ⬡ > **Device settings** > **Upgrade** (Default admin password 0000) .

← Device settings	Upgrade
🕘 Time & Date	Sensor Update Already the latest version
🖥 Display	
🌐 Network	Automatic Update
🗄 Proxy	Device will detect whether there is a new version and upgrade automatically at the fixed time point
📶 Wi-Fi	
🌡 Sensor	
⌂ Teams Admin Settings	
⬆ Upgrade	
◔ Debug	
🔒 Admin Password	
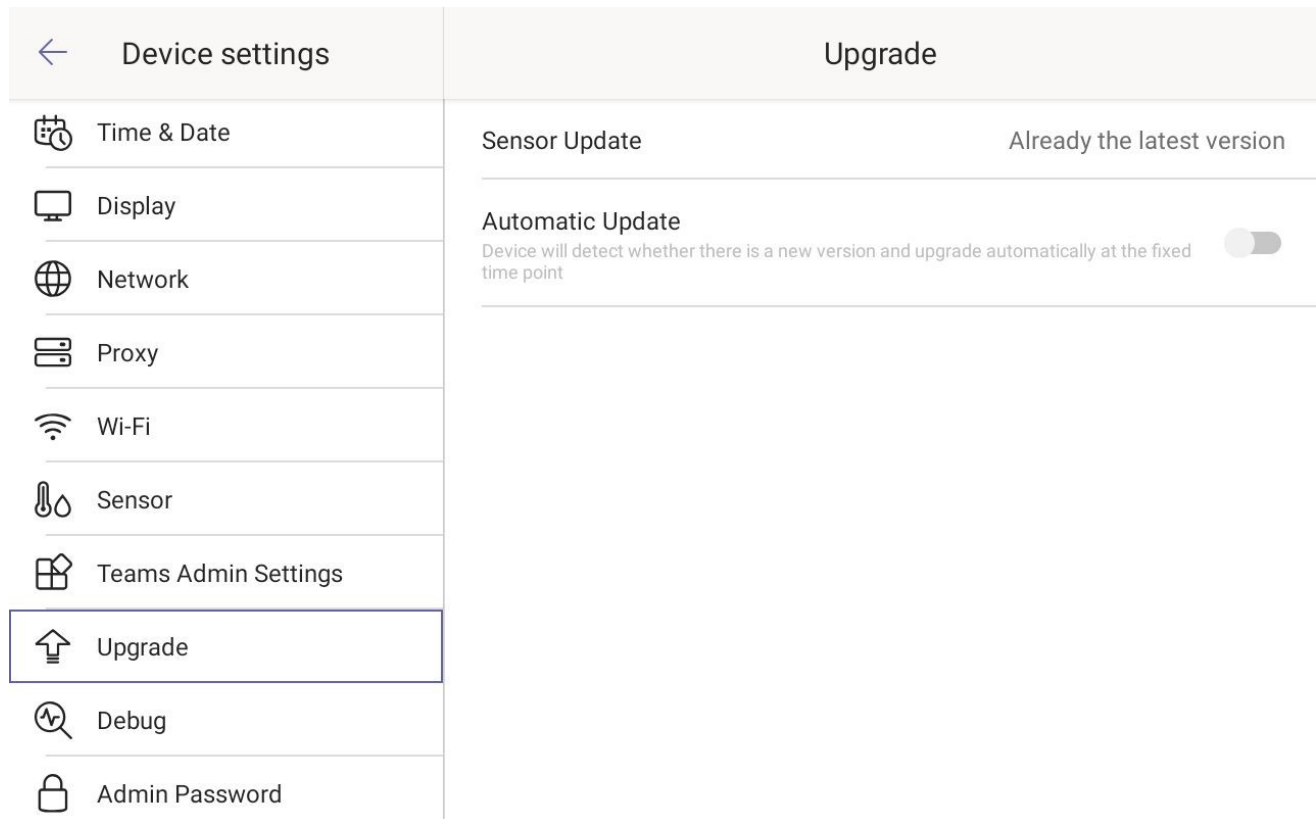
5.2 Upgrading via Web User Interface

Log in to the web user interface of RoomPanel, and you can complete the device upgrade via manual upgrade, automatic upgrade, firmware upload and upgrade, etc.

1. Enter the IP address of the RoomPanel in the browser, e.g., http(s)://10.82.24.11/, and press **Enter**.

   Go to ⬡ > **Device settings** > **About** > **RoomPanel** > **IPv4** to get the IP address of the RoomPanel.

2. Enter the username and password (Default user name: admin, default password: 0000), then click **Login**.

3. Go to **System** > **Update**.

Yealink | RoomPanel

English(English) ▼

admin

- Status
- Network
- System
  - Basic
  - Date&Time
  - Display
  - Backup & Restore
  - **Update**
  - Auto Provision
  - System Diagnostic
- Security

Sensor Status

⟳ Check for Update

Sensor Firmware Version

RoomSensor-80B0   8.510.0.25

Update Schedule

Automatic Update   ⬤

We will automatically keep the system up to date for you.

Manually Update

Device Firmware   🗁 Select File

Sensor Firmware   🗁 Select File

⬆ Update

Get the latest firmware from http://support.yealink.com/

Cross-system Upgrade

Cross-system Upgrade   ⬤

Confirm   Cancel

6 FAQ

6.1 PIR sensors are only used to identify moving objects, and many small motions are often not recognized. Is it reliable for conference room occupancy detection?

A: RoomSensor can only recognize moving objects because of PIR pyro-infrared technology. Still, PIR can recognize motion and small motions and can support sensitivity adjustment, reducing missed detections in small motion scenes. In addition, use the idle timeout to carry out the conference room strategy. For example, set the idle timeout to 15 minutes. If no moving objects are detected within 15 minutes, it will be reported that there is no one in the conference room. It can ensure that there will be no missed detection as much as possible (generally normal situations). There will be no conference room scene where no motion is detected for 15 minutes in a row).

6.2 If the sensor is installed on the ceiling and there is a projector, will it affect the detection?

A: Infrared penetration is relatively poor. When projectors or other objects block people's moving line of sight, it is not easy for the sensor to receive infrared rays, and there may be situations where they cannot be sensed. It is recommended to avoid objects in the detection area as much as possible (such as chandeliers and projectors) to block the detection line of sight.

6.3 Can the RoomSensor be installed next to the ceiling air-conditioning vent or ventilation window?

A: Objects with temperature and moving airflow will affect the sensor's accuracy, which is likely to cause false alarms. It is recommended to install the sensor 1.8 meters or more away from hot objects or moving airflow.

6.4 Is the sensitivity higher the better?

A: No. Although high sensitivity increases sensitivity to small motions, external factors unrelated to the human body can easily be mixed in, such as the temperature of the surrounding lighting and thermal airflow disturbances outside the window, leading to false alarms where no one is in the actual meeting room. Choosing the right sensitivity according to the meeting room scenario and actual commissioning is advisable.

6.5 When adding a sensor to a RoomPanel, how do I distinguish between multiple sensors with Bluetooth signals when searching for them nearby?

A: Open the RoomSensor bottom case. Inside is information about the Bluetooth name label for that device, which corresponds to it in the searchable Bluetooth list.

6.6 What is the RoomSensor powered by?

Dry battery powered, model CR-123A. Compared to the wired power supply method, the dry battery-powered method is more flexible in deployment and eliminates the need for wiring. After paired with the RoomPanel, go to ⬡ > **Device settings** > **Sensor** (Default admin password 0000) > **Details** to check the battery. The normal battery life is five years, and if high sensitivity detection is used for a long time, it will reduce the battery life to some extent.

6.7 How many RoomSensors can be paired with one RoomPanel?

A: Four. In a real scenario, we need to turn on the test mode and determine the number of sensors to be deployed based on the actual size of the room and the layout of the room (e.g., whether there are devices like projectors or spotlights on the ceiling to block the sensor detection angle).

6.8 Is it possible to detect small motions within the detection coverage?

A: The coverage of identifying small motions is within a radius of 3 meters. However, due to differences in the movement range of small motions, there is still the possibility of missed detection. Therefore, the closer the detected human body is to the sensor, the easier it is to be identified. It can also be used with multiple sensors to help improve identification accuracy.