



Aqara Spatial Multi-Sensor FP400 Introduction

continuous connection

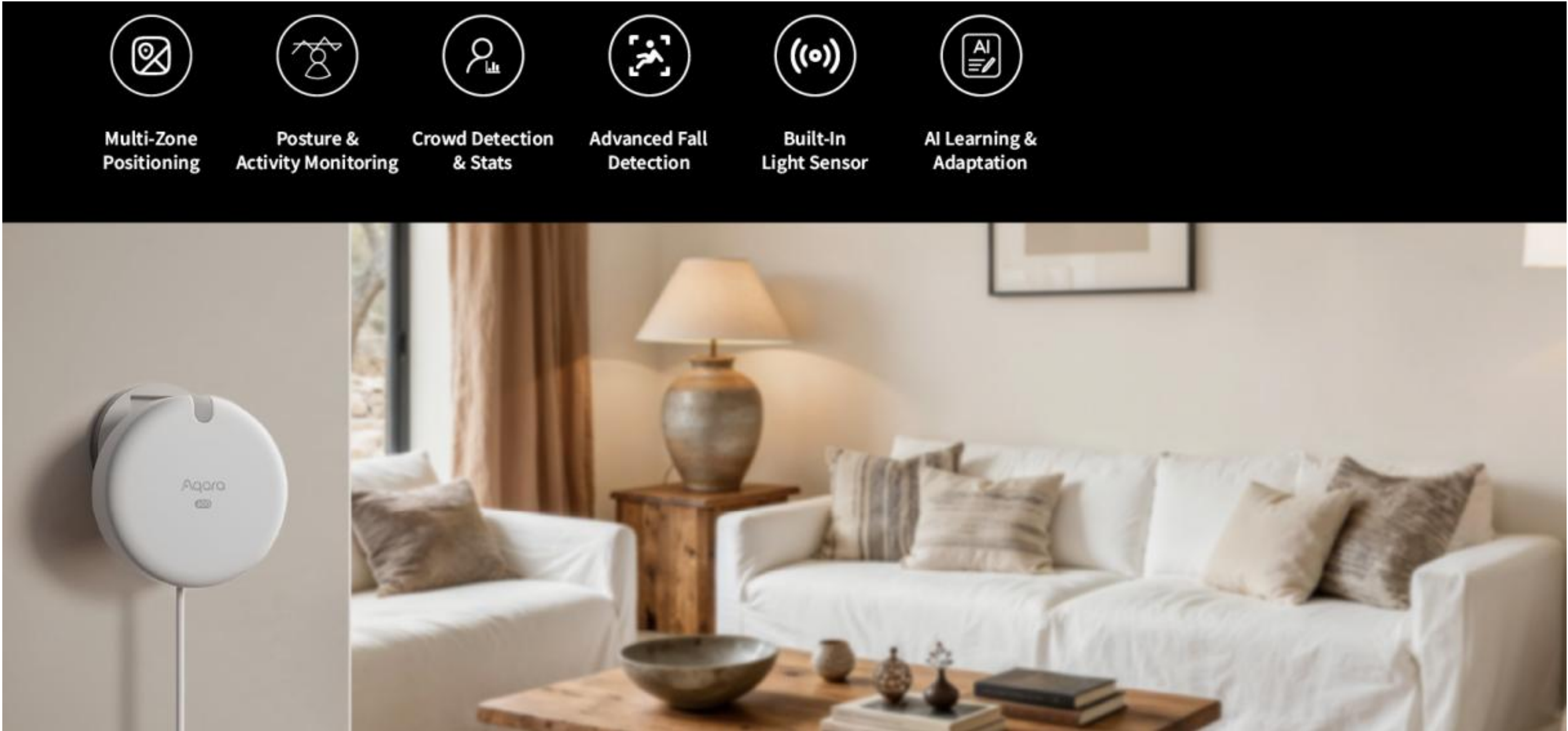
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- **Product Introduction**
- **Product Installation**
- **Configuration on App**
- **FAQ & Troubleshooting**

Spatial Multi-Sensor FP400 Overview

The FP400 is a next-gen mm-wave radar sensor designed to bring spatial intelligence to the smart home. Combining advanced 60GHz radar hardware with an upgraded AI sensing algorithm, it detects presence, tracks multiple people, understands zone occupancy, and measures ambient light without using a camera. With Zigbee and native Matter over Thread support, FP400 works across Aqara and Matter-enabled ecosystems, enabling smarter, more responsive automations based on how people actually use a space.

Sales Regions: Global （except for RU & JP）



Spatial Multi-Sensor FP400 Overview

FP400 Core Feature

AI Space Sensor, Precisely Perceives Space Status

Presence Detection



More powerful hardware and algorithms, maximally avoid environmental interference, for more accurate detection.

Multi-target Positioning



Supports 10 targets, enables multi-person spatial positioning.

Wider Coverage



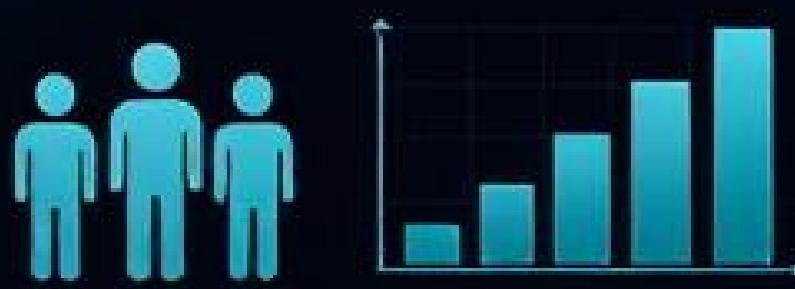
120° horizontal, 100° vertical, covers an 8x10m area.

Flexible Installation



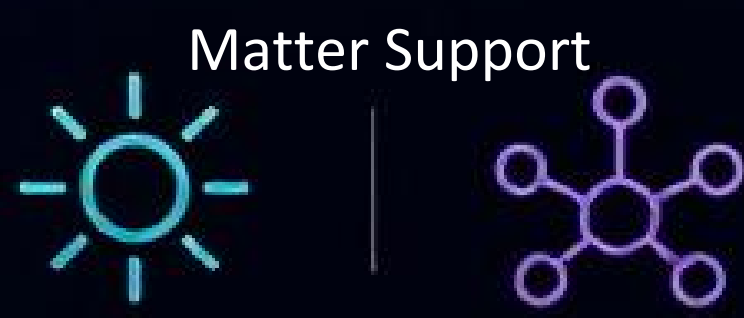
Side, corner, and ceiling mounting are supported, adapting to more spaces.

Real-time Occupancy & Space Status



Supports real-time people counting, making space status clear at a glance.

Illuminance Detection & Matter Support



Supports illuminance detection, with new native support for the Matter protocol for broader platform compatibility.



AI-Driven Algorithms
More accurate, more stable, and smarter.



High-Performance mm-Wave Solution
Strong anti-interference, stable sensing.



Native Matter Support
Broader ecosystem compatibility.



Continuous OTA Upgrades
Evolving features for a consistently fresh experience.

Spatial Multi-Sensor FP400 Overview

Left/Right, Front/Back, Near/Far, Motion/Stillness, Positioning All-in-One Detection

The FP400 accurately identifies human presence and spatial position, supporting multi-dimensional detection and real-time positioning.

Multi-dimensional Space Detection

Left & Right/Front & Back/ Near & Far/Motion & Stillness /Positioning
Sensitivity and distance support
3-level adjustment

Human Presence Detection

Accurately detect occupied /unoccupied space status,
precisely maintain static
human presence.

Spatial Positioning Detection

Real-time tracking of people
and pets within the space.

Left/Right Entry & Exit Detection

Detects direction of movement, ideal for
assisting with home entry/exit
determination.

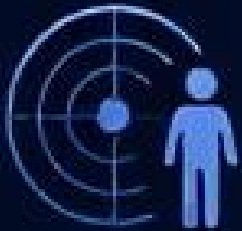
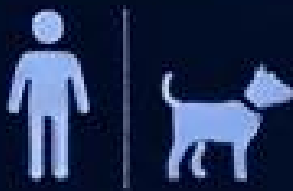
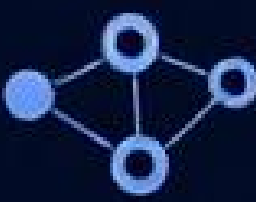
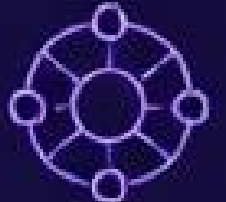
Approach & Departure Detection

Provides alerts upon approach, with three adjustable
distance ranges (Near / Medium / Far).



continuous connection

Spatial Multi-Sensor FP400 Overview

FP400 vs. FP2: Core Upgrades				
From Scene Sensor to AI Space Sensor				
	FP2 (Scene Sensor)		FP400 (AI Space Sensor)	Upgrade Highlights
Presence Detection	 Support	升级	 Enhanced Static Detection: Improved accuracy for precise detection.	 Enhanced Hardware & Algorithms: Maximum environmental interference resistance with superior detection accuracy.
Target Positioning	 - Supports 3-5 Targets 120° Horizontal FOV, 40° Elevation FOV 6 x 8 m Coverage Area - Wall Mount/Corner Mount/Ceiling Mount	升级	 - Supports 10 Targets 120° Horizontal FOV, 100° Elevation FOV 8 x 10 m Coverage Area - Wall Mount/Corner Mount/Ceiling Mount	 More Targets Supported, Wider FOV, and More Flexible Installation.
Motion Static Detection	 N/A	升级	 Dynamic Motion Recognition: Accurately identifies both stationary and moving targets when present.	 New Motion and Static Detection: Provides a clear overview of the space status at a glance.
Target Classification	 - AI Human Recognition - Human vs. Non-human Distinguish (Side Mount Only)	升级	 Advanced Non-human Distinguish : More precise filtering of non-human targets. New Pet Tagging: Added pet marking feature.	 Accurately Distinguishes Non-human Targets and Intelligently Filters Out Pets.
Platform Support	 A      Aqara, Apple Home, Goolge, Alexa, Samsung, Home Assistant, etc...	升级	A      Aqara, Apple Home, Matter , Goolge, Alexa, Samsung, Home Assistant, etc...	 Native Matter Protocol Support Added for Broader Platform Compatibility.

Spatial Multi-Sensor FP400 Overview



Model	PS-S05D
Detection Angle	Horizontal 120°, vertical 100°
Regions and targets	Up to 8 custom zones; simultaneous tracking of up to 10 targets
Dimensions	64 × 64 × 29.5 mm (2.52 × 2. 52 x 1.16 in.)
Power Input	5V ⎓ 1A
Ports	USB-C
Wireless Protocols	Thread, Zigbee, BLE
Protection Rating	IPX5
Operating Temperature	-10°C ~ 50°C (14°F ~ 122°F)
Operating Humidity	0 ~ 95% RH, no condensation
What is in the Box	Brand Retail Version: Spatial Multi-Sensor FP400 x 1, Bracket x 1, User Manual x 1, USB-C to USB-C Cable x 1, Metal Plate x 1, Sticker x 1, Screw Kit x 1



Functional Comparison of Millimeter-Wave Series Products

Main Functions	FP1E	FP300	FP2	FP400	FP400 Pro
Presence Detection	✓	✓	✓	✓	✓
Target Positioning			✓	✓	✓
Illumination Detection		✓	✓	✓	✓
Real-time Headcount			✓	✓	✓
Pose Detection					✓
Fall Detection			✓		✓
Sleep Monitoring			✓		
Data Statistics			✓ Partial		✓
Bi-directional People Flow Counting (Standalone mode)					✓
Temperature and Humidity Detection		✓			
Battery-powered		✓			
Support Matter		✓		✓	✓
Hub Requirement	Zigbee hub	Zigbee/Thread hub	Wi-Fi direct connect No hub is required	Zigbee/Thread hub (Support Matter direct connection)	Zigbee/Thread hub (Support Matter direct connection)

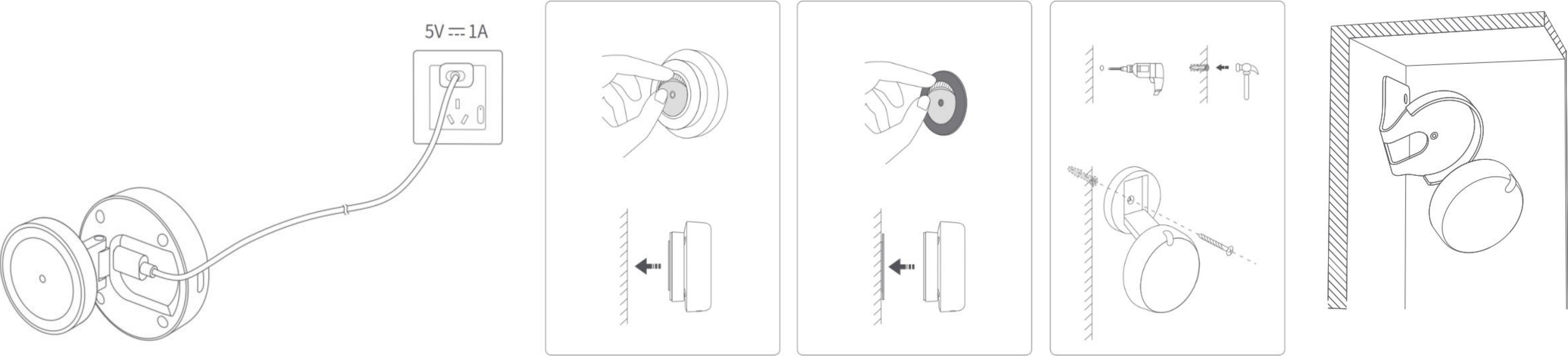
Functional Comparison of Millimeter-Wave Series Products

	AI Smart Presence Sensor FP1E	AI Smart Presence Sensor FP300 (battery powered)	AI Smart Presence Sensor FP2	AI Smart Space sensor FP400
Product Positioning	Entry Level Millimeter Wave Presence Sensor	Low Power Millimeter Wave Presence Sensor	Full-featured, high-performance scene sensors	Multifunctional space sensor
Core Function	Presence Detection	Presence detection	Presence detection, target localization, sleep monitoring, fall detection, light detection	Presence detection, target location, light detection, real-time headcount
Sensors	/	Illumination sensor	Illumination sensor	Illumination sensor
Detection Range	Static 6m, Dynamic 6m	Static 6m, Dynamic 6m	6*8m	Side mount max. 8*10m
Detection Angle	Pitch 120 degrees, horizontal close range max 180 degrees	Pitch 120 degrees, horizontal close range max 180 degrees	Level 120, pitch 40.	Level 120, pitch 100.
Communication Protocol	Zigbee3.0	Zigbee、Thread	WiFi	Zigbee、Thread
Hub Support	Zigbee gateway	Zigbee Gateway/Thread Hub	No gateway required	Zigbee Gateway/Thread Hub
Support Platform	AIOT, Apple Home, Matter Over Bridge , Google, Alexa, Samsung and others	AIOT, Apple Home, Matter Over Bridge, Google, Alexa, Samsung and others	AIOT, Apple Home, Google, Alexa, Samsung, etc.	AIOT, Apple Home, Matter , Google, Alexa, Samsung and others
Applicable Scenarios	Only need to monitor the presence state, no need to divide the area, high requirements for the presence accuracy	No power, only presence detection	Requires high positioning accuracy, more segmentation, greater detection range, or more advanced functions (sleep, falls, people flow)	High detection accuracy requirements, zoning and multi-target positioning requirements

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Power Supply and Installation Mode



Power Supply

5V DC / 1A
USB-C interface
constant power supply

Mounting Method

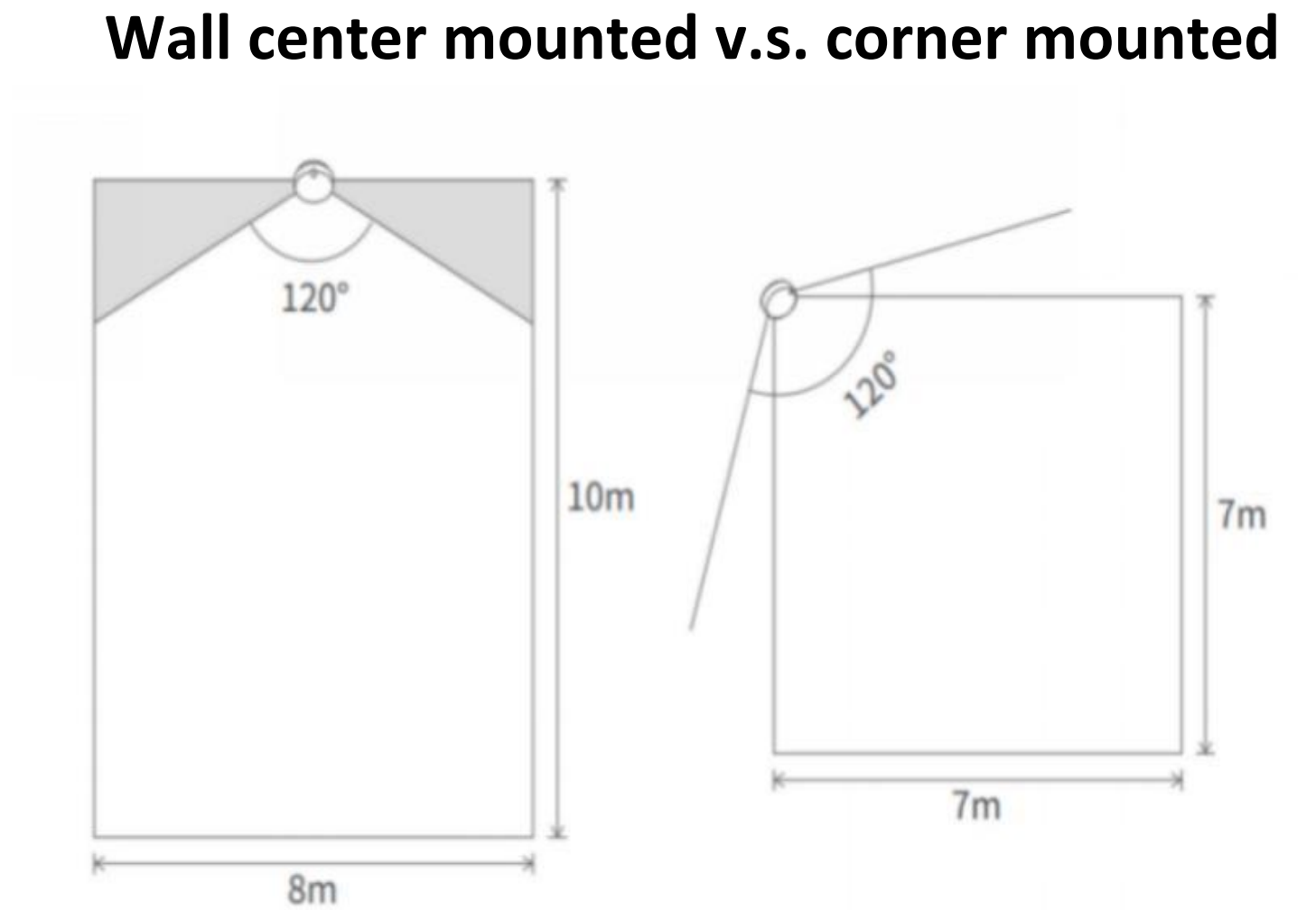
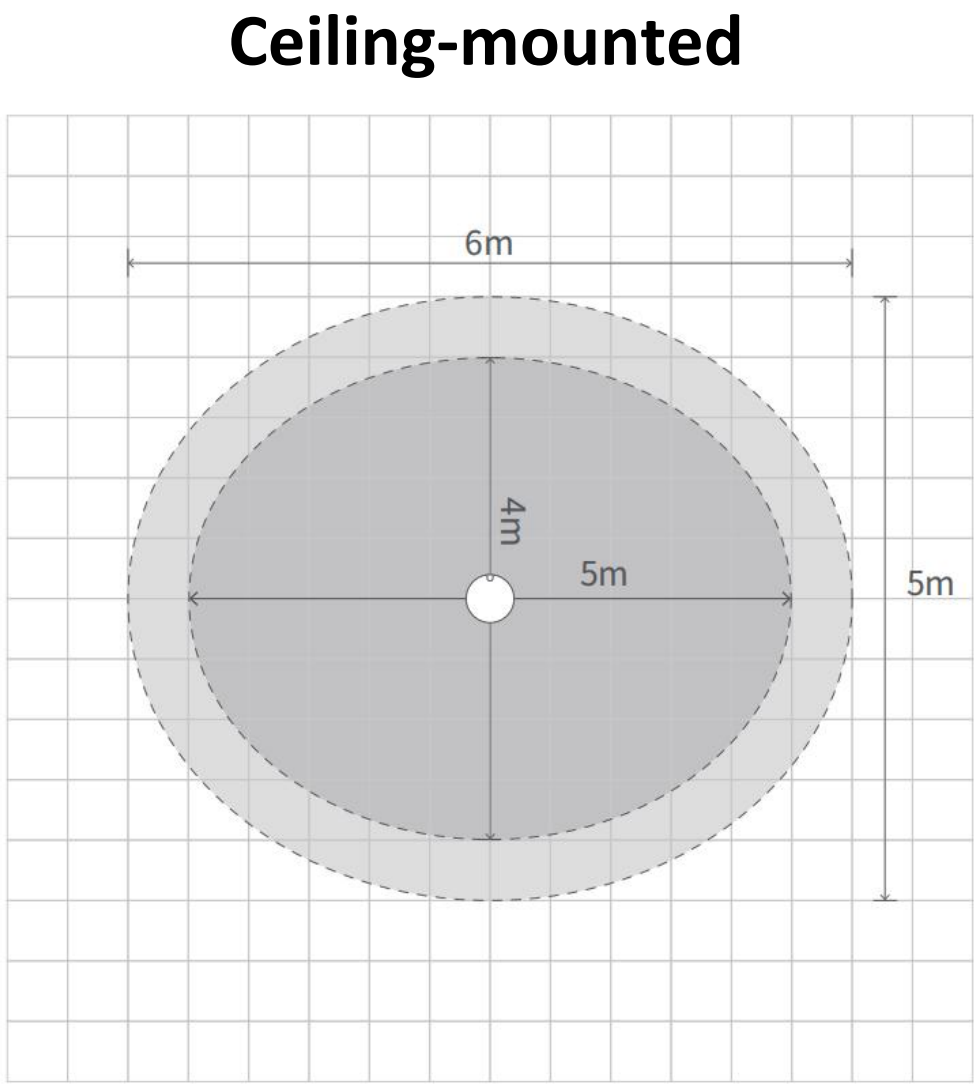
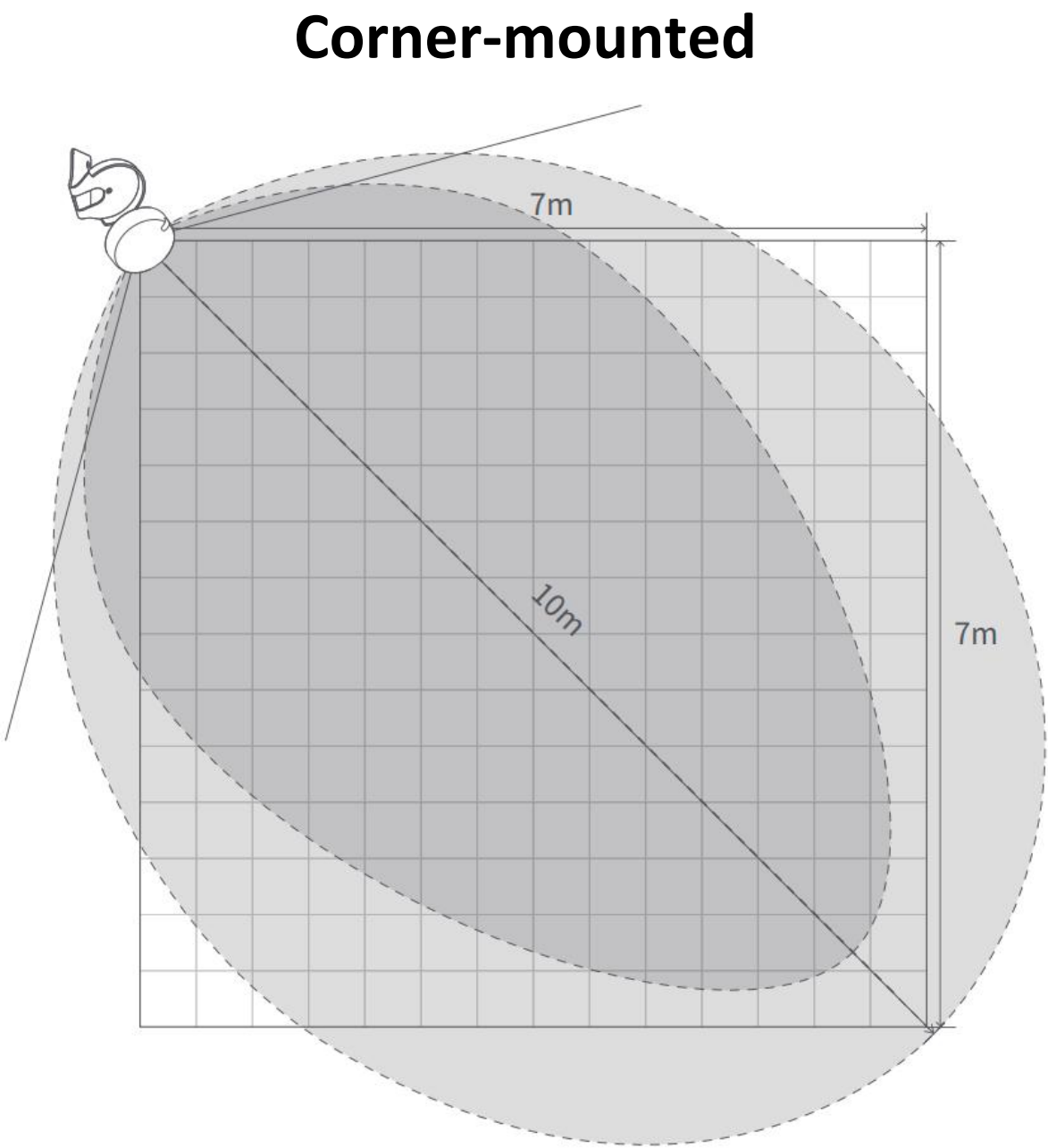
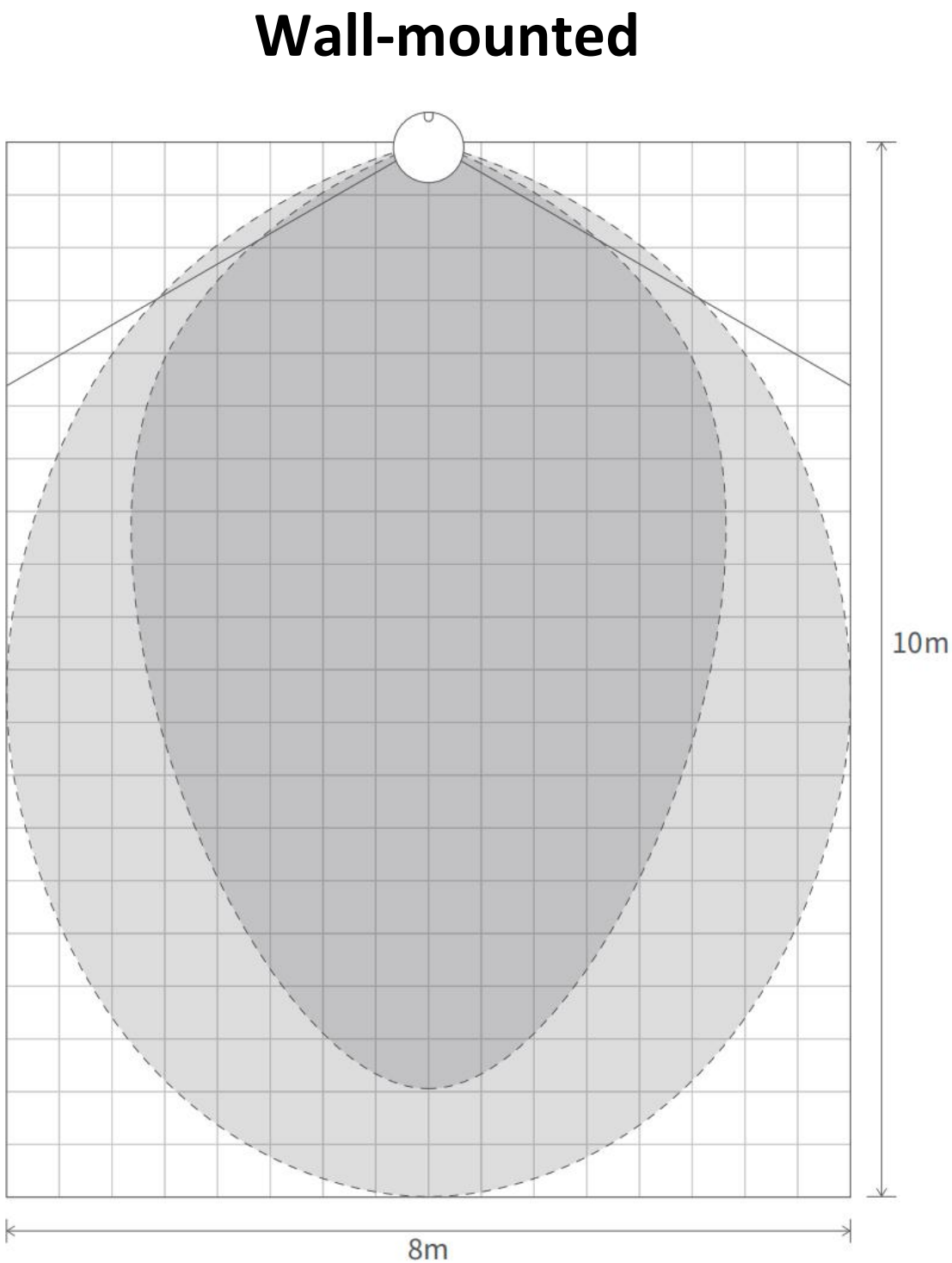
Paste, magnetic attraction, expansion screw
Side/top mount
Corner brackets are optional

Safety Requirements

Screw fixation is recommended for heights exceeding 2m
Install boot again after moving the device

The equipment supports installation by pasting, magnetic absorption, expansion screws, etc., and supports side mounting and top mounting. Different installation methods and installation heights have an impact on the detection range. According to the required detection range, select the appropriate installation position, and adjust the detection range by adjusting the installation angle and equipment tilt angle.

Detection Range



Light areas are moving areas, dark areas are presence areas

Installation Method	Recommended Height	Maximum magnitude	Training Focused
Wall-mounted	1.5-2m	Radial 10m /Transverse 8m	Suitable for wide coverage
Corner-mounted	1.5-2m	7m × 7m	Reduce blind spots on both sides
Ceiling-mounted	3-4m	Move 5×6m /Presence 4×5m	Suitable for bathroom and other scenes

Installation Recommendations

Installation quality directly determines the radar experience. In case of abnormality, the installation position and environmental interference shall be confirmed first.

Please avoid :

Large area glass, mirror, metal, smooth tile, Air conditioning outlets, air purifiers, fans, pendulum animals
Critical areas, especially entrances and exits, should not be placed in FOV blind areas



Keep the target and wall/window/edge above 0.5m, which can significantly reduce Ghost detection and positioning jump issues.

App Binding and Protocol Selection

Zigbee protocol

Need Aqara Zigbee Gateway
Aqara has more complete capabilities
Local automation and more stable response

Thread protocols

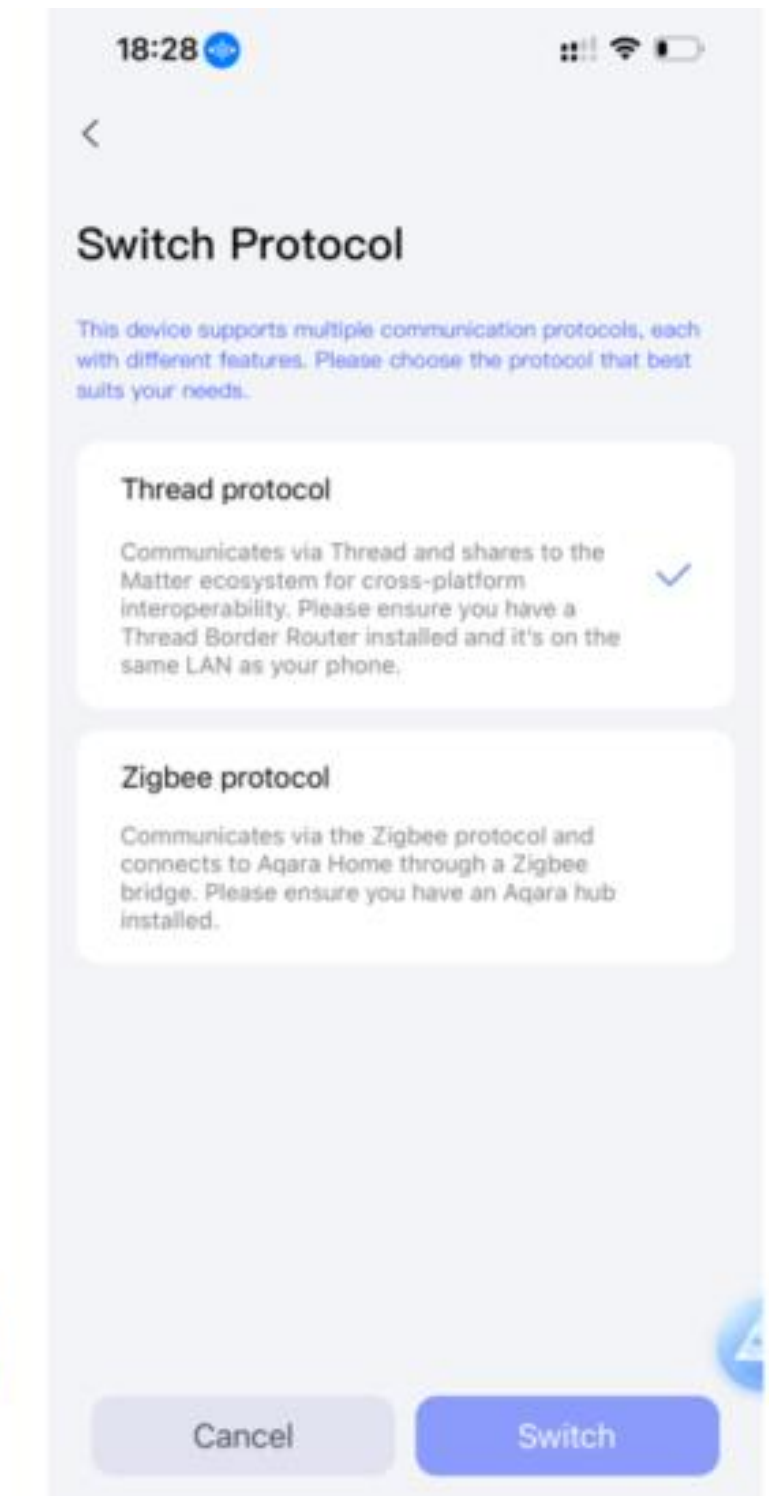
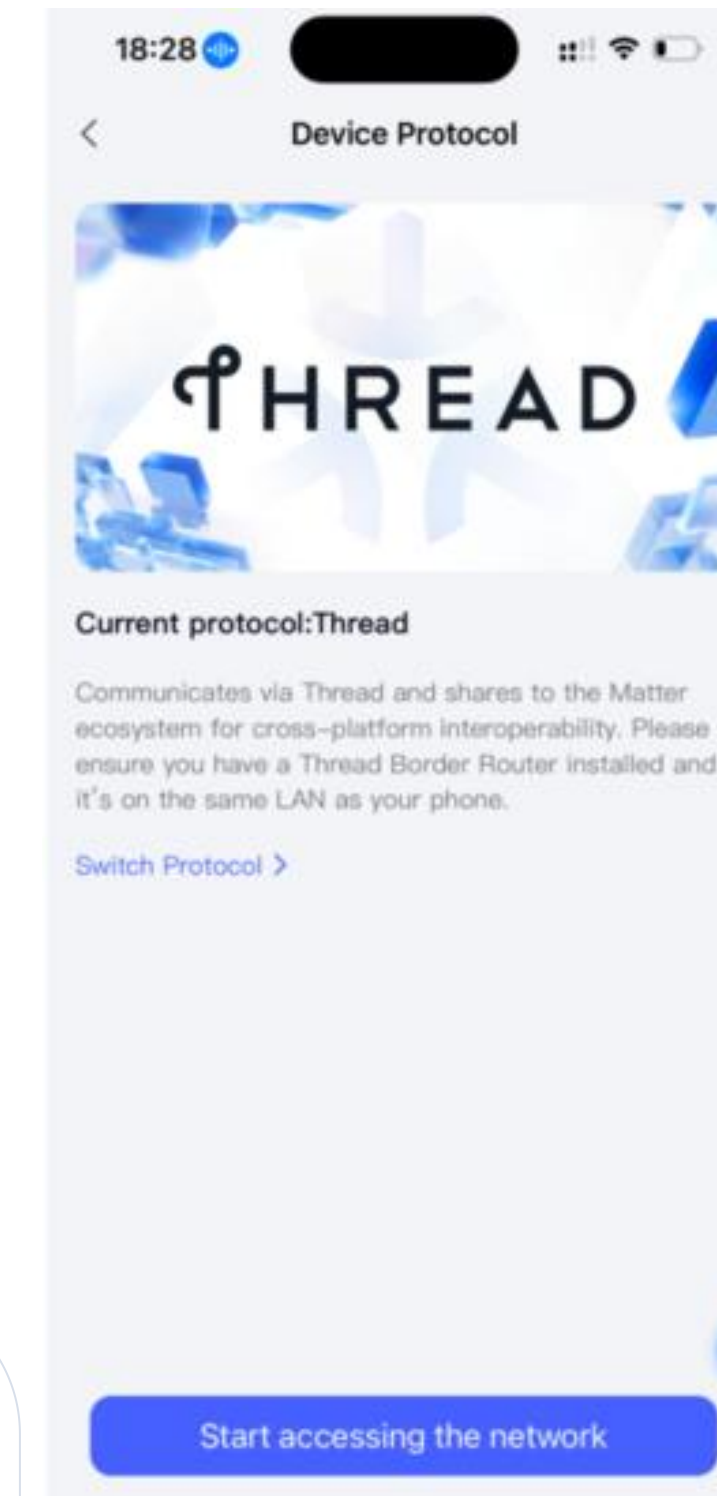
Aqara Matter controller required
Native Support Matter
More suitable for cross-platform interconnection

Share to third party ecosystem

Complete configuration at Aqara Home
Add via App Matter Share Code
Do not scan the product body and manual Matter code

Firmware switch/upgrade

Upgrade firmware first after adding; if the third party cannot obtain the latest firmware, you can go back to Aqara Home for upgrading. If there is no gateway, you can obtain the latest firmware by switching the protocol twice. Note that switching protocols clears settings and data; to keep the map, save the map template first.
Thread protocol is the default of the device. If you want to use Zigbee protocol, please select switch when adding it. Depending on the network situation, firmware switch may take 10-50 minutes.



FP400 Zigbee v.s. Thread function



Main functions, configuration items	Aqara Home App (Zigbee Protocol, Aqara Hub)	Aqara Home App (Thread Protocol, Aqara Matter Hub)	Matter Third Party added directly
Presence Detection	✓	✓	✓
Area Positioning	✓	✓	
Area Mapping (Both protocols support 8 custom partitions)	✓	✓	
Dynamic and Static Sleeve Detection	✓	✓	
Illumination Detection	✓	✓	✓
Real-time Population	✓	✓	
Unmanned Decision Delay Configuration	✓	✓	(currently only HA supported)
Detection Sensitivity Configuration	✓	✓	(currently only HA supported)
AI high-precision Human Recognition	✓	✓	

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FAQ

Tips: How to improve target positioning accuracy?

1. Installation location: choose no glass, mirrors, metal, water, air conditioning, fans, disturbing curtains and other interference places, if unavoidable, can skillfully interfere with the target placed in the monitoring blind area.
2. Installation: select the appropriate height, the equipment fixed installation on the wall, keep the logo level. The detection angle of the equipment is 120 degrees horizontal, 20 degrees tilt, and the farthest detection distance is 8 meters. If the equipment is too high or too low, it may affect the detection range, resulting in false triggering or missing.
3. Set the maximum detection range: Set the maximum detection range by moving to the three farthest points, and the other areas will be automatically set to the edge.
4. Set the entrance and exit: the entrance and exit area will help to quickly establish and delete the target, the entrance and exit settings are very important for timely and accurate detection results.
5. Set interference area: If there are air conditioners, fans, disturbed curtains and other disturbances in the space, set it as interference area in time.
6. Set the presence monitoring sensitivity: The higher the sensitivity, the easier it is to detect the micro-motion of the target, and the easier it is to trigger "someone" and maintain the "someone" status.
7. AI high-precision human body recognition: AI high-precision human body recognition can be turned on according to needs, and interference such as sweeper and pet can be filtered out.
8. False alarm correction: if there is a false alarm due to interference, you can delete the target at the same time set interference.

FAQ

Q: What can target positioning mode monitor?

Ans: Aqara human scene sensor FP2 in target positioning mode, can monitor the space with people, no one, fall, enter, leave, approach, far away and other states, support multi-target real-time tracking, area setting.

Q: What's the detection zone?

Ans: The detection area is convenient for users to configure more specific area automation, users have 320 grid choices, users can freely choose which areas as trigger areas for automation events. For example, set sofa, bathroom, study, dining table and other areas. Once the detection area is set, the automatic conditions will increase the selection of detection areas; up to 8 detection areas are supported.

Q: What is the use of regional background maps?

Ans: The regional background map is mainly used to facilitate the user to make a reference frame, so that the user can know where the target is more accurately;

The background image only affects the user's subjective judgment and does not affect the recognition performance of the device.

Q: Do I have to go with Aqara Gateway?

Ans: Aqara gateway/hub is required to use the full function; direct scanning of the original Matter code is limited (only single area) and is not recommended.

Q: Can you detect falls or gestures?

Ans: No. The FP400 support absence , static state, positioning, number of people detection, fall/posture/identity recognition are not supported.

Q: Can I use the bathroom or kitchen?

Ans: IPX5 splash-proof, suitable for indoor humid environment; avoid open fire and high temperature steam direct blowing.

Q: Why s the number of third-party areas wrong?

Ans: First complete the zone configuration at Aqara Home, then synchronize via Matter sharing code; re-add if necessary.

FAQ

Q: What can proximity and distance automation do? What is the use of proximity sensing distance configuration?

Ans: Users can configure automation close to or away from the sensor, such as approaching the sensor and turning on the light; the three gears of proximity sensing distance represent 1 meter, 2 meters and 3 meters respectively. After setting, entering this threshold from far will report a close event; leaving this threshold from near will report a far event.

Q: Do interference sources, entrances and exits, and edges have to be set?

Ans: The human scene sensor uses millimeter wave technology, which is sensitive to moving objects, while there are often moving targets in living and office space, such as curtains, fans, wind-blown green plants and dried clothes. If the sensor happens to face these objects, it is easy to generate false alarms. If the installation location cannot be avoided, this area needs to be used for interference source labeling. At present, the interference source labeling is mainly supported by green plants, running water and other objects with small emission signals. The entrance and exit, edge settings, is also used to improve the accuracy of the sensor. More labels can help the sensor make more accurate judgments. If the environment is clean, these configurations will generally work even if they are not set.

Q: What is the difference between non-directional monitoring and left-right monitoring?

Ans: Directionless monitoring monitors the presence of human beings within the sensing range.

Left and right monitoring can monitor the direction of human movement on both sides of the sensing range to help better distinguish scenes, such as: in the scene where it is necessary to distinguish between entering/leaving, you can choose left and right monitoring.

FP2 uses non-directional monitoring by default. Left and right monitoring requires more data transmission than non-directional monitoring. If users have no need for directional monitoring, it is recommended to turn on non-directional monitoring.

Troubleshooting: Detect Anomalies

Troubleshooting sequence: first look at installation and environment, then look at App configuration, and finally look at firmware and device status.

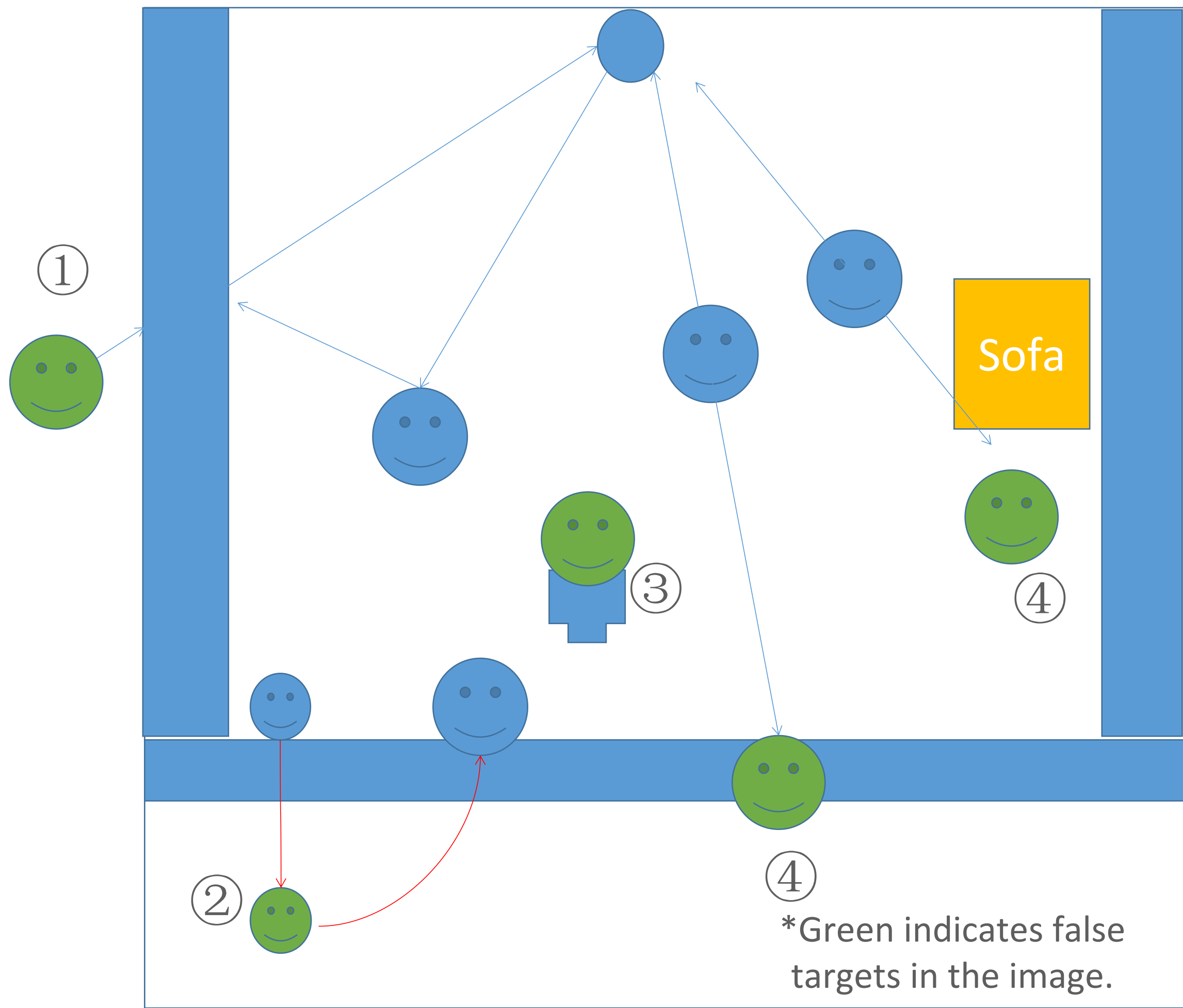
Issue	Priority Determination	Processing Path
False Alarm	Micro-motion interference, strong reflection, ghost residue	Set interference sources/edges → reduce sensitivity → background learning → upgrade firmware
Missing Someone	Installation angle, sensitivity, occlusion, extreme static state	Towards the chest → Increase sensitivity → Extend absence period → Remove occlusion
Static Instability	Distance/FOV edge, period too short	1.5-2m installation → high sensitivity → long period → background learning

Troubleshooting: Location, Population and Ecology

Troubleshooting sequence: first look at installation and environment, then look at App configuration, and finally look at firmware and device status.

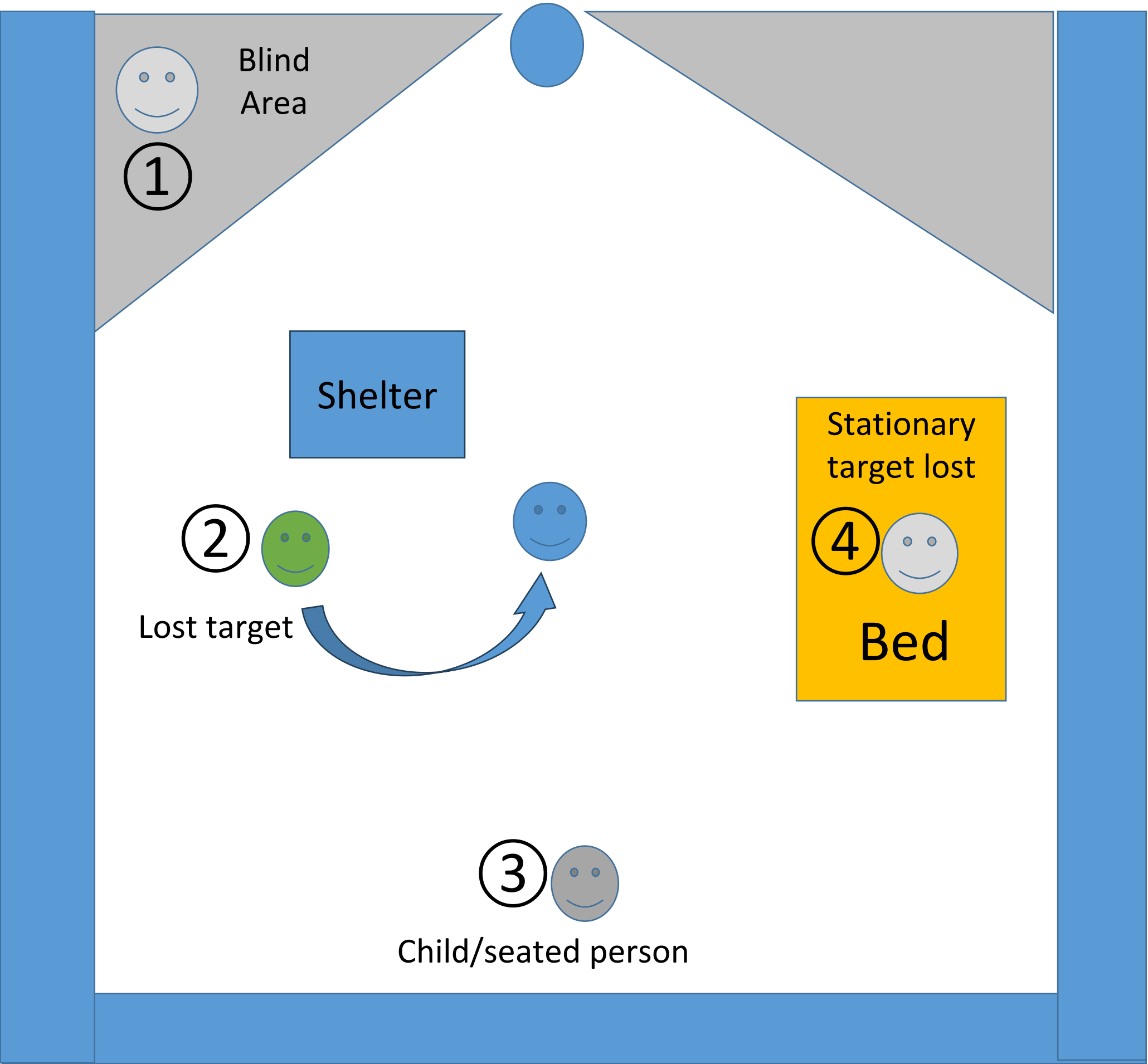
Issue	Priority Determination	Processing Path
Location jump/ghost	Strong reflection, multipath echo, pendulous animal	Set edge/interference source → target 0.5m from wall window → background learning
Number of people not correct	Multiple close quarters, occlusion, pet/sweeper interference	Keep>1m → Turn on AI recognition → Set interference source → See trend
Third party out of sync	Platform capability differences, unconfigured Aqara Home	Confirm Firmware → Aqara Home Configuration → Reload with Matter Share Code
Cannot pair	Power supply/distribution network status/gateway or hub anomaly	Confirm 5V1A → Press and hold 5s → Move close to hub→ Restore factory if necessary

Troubleshooting: Sources and solutions of false targets



No.	Decoy Source	Solution
①	Multipath and strong reflection (Mirror, metal, marble tiles)	1. Set the edges right from the start; 2. spatial background self-learning
②	Target residual (Obstructed, entering from the edge)	1. Set import and export (3s quick delete) Up to 5min Device will also be automatically deleted
③	Interference source (Real micro-motion objects. Such as fans, green plants, curtains, etc.)	1. Set edges, interference sources 2. Smart Space Learning (Reset Unmanned) 3. Manually delete and set as interference source 4. Turn on AI high-precision body recognition
④	Ghosting (Man walking)	1. Set edges, interference sources 2. Manually delete and set as interference source 3. Turn on AI high-precision body recognition 12s devices are automatically deleted

Troubleshooting: Sources and solutions of false targets



No.	Target Lost	Solution
①	Dead Zone	1. The blind spot problem is a radar angle problem, which cannot be solved by setting at present. 2. When setting the detection range, try to avoid blind spots. 3. Or multiple radars can be used to detect.
②	Occluded	1. Avoid large objects/walls in the detection area. 2. The presence monitoring sensitivity of the zone can be adjusted higher.
③	Target's too short	1. Adjust the pitch angle of the equipment support to adjust the monitoring range 2. If the installation is too high, adjust the installation height of the equipment.
④	Weak Signal	1. Improve the sensitivity of presence monitoring; 2. Improve the sensitivity of monitoring in the area; 3. Set the monitoring area as a bed (extreme case)

THANK YOU