

60G Millimeterwave Biosensing radar

R60ABD1-Respiratory sleep TuyaWiFi application manual

Please read the product instructions carefully and keep them properly before use V1.0

CONTENT

1. Steps of equipment distribution network routine:	2
2. Introduction of APP panel interface:	4
3. Application scenarios and functions of breathing and heartbeat radar: .5	
3.1 Respiration and heartbeat radar installation scenario limitations: 5	
3.2 Main function points of breathing and heartbeat radar:	5
4. Realization principle of breathing and heartbeat radar function Case: .5	
4.1 Judgment of someone/unmanned status:	5
4.2 Active/Static/Stateless Judgment:	7
4.3 Breathing Heart Rate Test:	错误! 未定义书签。
5. historical version update instructions	10

1. Device distribution routine steps

1、Download through the app store: Tuya Smart APP

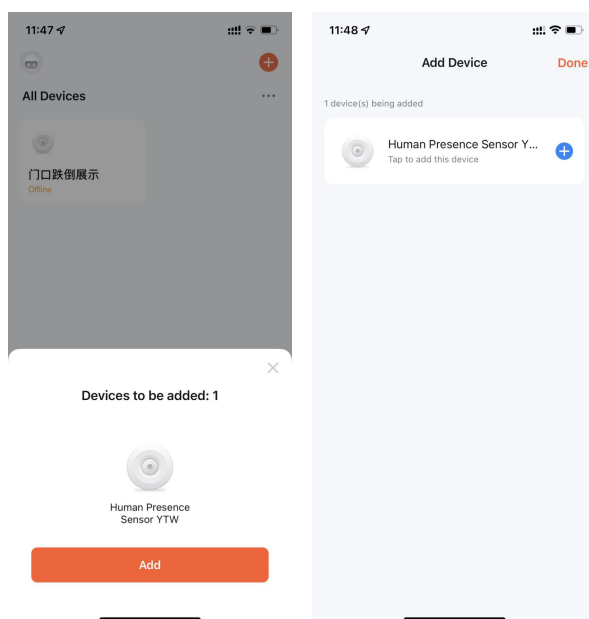


2、Press and hold the button on the product until the LED light is off and then release when it flashes. At this time, the radar resets and enters the network distribution mode. The network distribution operation can be performed in two ways:

(Note: The phone needs to be connected to 2.4Gwifi, not 5Gwifi)

Method 1 (Bluetooth):

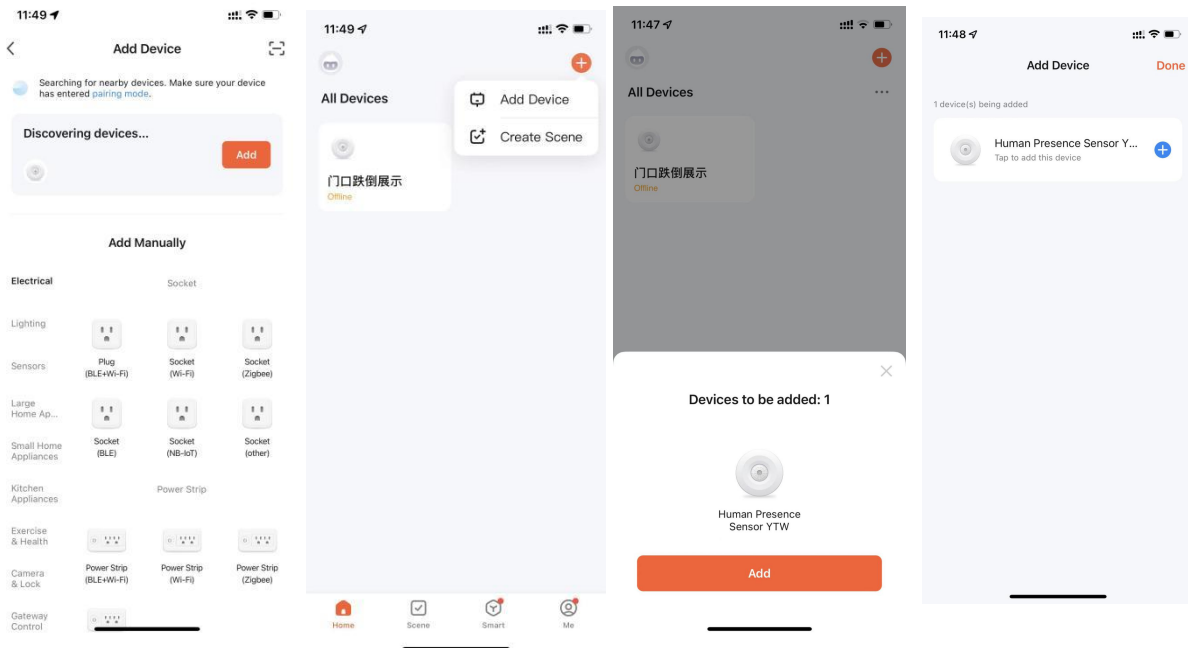
The App interface will pop up "Discover the device to be added: 1". After clicking to add, the app will automatically connect the device to the network.



Method 2 (Wi-Fi):

Click the "red plus sign" in the upper right corner of the APP interface to enter the product category selection page, click "Auto Discovery" in the upper right corner to search for the device, and click "Next" after discovering the device.

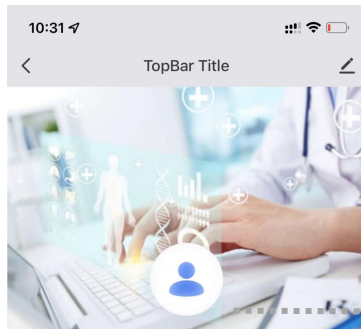
Fill in the relevant wifi information and click "Next" to configure the device.



3、Wait for the APP to configure the wifi network until the network configuration is successful, then the Tuya wifi radar device can be successfully connected.



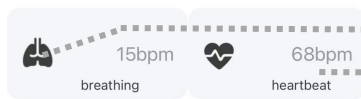
2. APP panel interface introduction



Presence

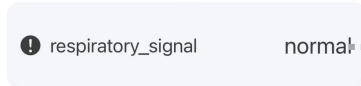
🚶 Calm

Real-time environmental status



Real-time environmental status

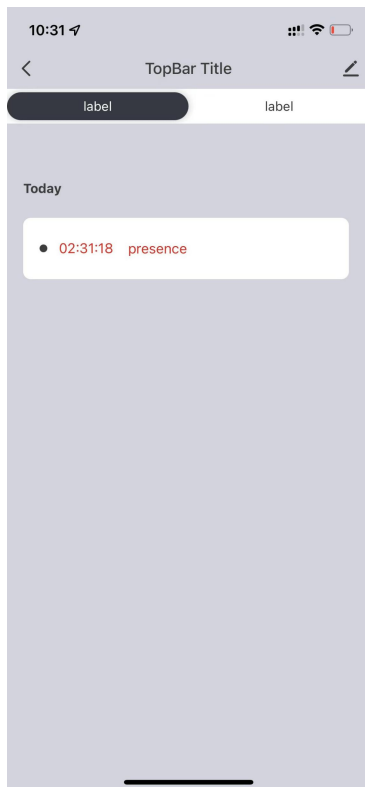
Real-time display area of average heartbeat value per minute



Real-time respiratory signal



History



Respiratory and heartbeat history



Environment status history

3. Application scenarios and functions of breathing and heartbeat radar

1. Respiration and heartbeat radar installation scenario

limitations:

- Respiration and heartbeat radar is only suitable for resting scenes (The person is still within 1.5m of the radar, and the radar is detected directly in front of the chest.)
- It is necessary to avoid fans, etc., which will vibrate and rotate metals within the radar detection range

2. Main function points of breathing and heartbeat radar:

- Any/unmanned status judgment
/ stateless judgment
- Respiration and heart rate detection
of breathing signal (normal breathing/abnormal breathing/none)

4. Example of the realization principle of breathing and heartbeat radar function

1. Judgment of someone/nobody status:

● No Time Test:

When there is no one in the radar detection range, the radar will detect whether there is no human movement, breathing and other actions within the range for a period of time, and output the unmanned state when it is confirmed that there is no one. (It is normal to enter the unmanned state within 40 in the normal environment with no one)

<p>leave the radar detection area</p> <p>There are no people moving around in the environment and no interference from sources of interference</p> <p>start the timer</p>	<p>When the radar status changes from someone to still - "no one stops for a moment</p> <p>Recording radar into dead time</p> <p>Less than or equal to provide data means "pass"</p>
---	--

Example test table format:

Testing frequency	into no man's time	pass
the first time	35s	pass

● **Trigger distance test:**

When a person within the radar detection range enters the trigger, the radar will instantly display the presence status.

<p>According to the trigger range</p> <p>Keep approaching the radar at a speed of at least 0.7m/s</p>	<p>When the radar state changes from no one - "someone stops for a moment</p> <p>Record the distance to the radar</p> <p>Compare and verify with the corresponding data provided</p> <p>Greater than or equal to provide data means "pass"</p>
---	--

Example test table format:

Testing frequency	Whether the comparison data is satisfied	pass
the first time	Satisfy	pass

● **Sitting distance test:**

When the person within the radar detection range remains stationary, the radar will continue to display the stationary state of the person.

Facing the Radar Sit Test within the Radar Sit Detection Range 5min per test	sit still at the corresponding distance Record whether the radar can keep the occupant state after sitting for 5 minutes If it can keep the state of people for 5 minutes, it means "pass"
--	--

Example test table format:

Testing frequency	Whether the comparison data is satisfied	pass
the first time	Satisfy	pass

2. Active/static/stateless judgment:

- **Active state test:**

When the tester continuously walks or continues to make large movements in the detection area of the human presence radar, the active state will be output (the "static state" triggers the "active state" response time of about 1s)

within the detection range Keep walking or keep making big moves Judging radar status	Radar status when in motion Can output "active" status means "passed"
---	--

Example test table format:

Testing frequency	Whether the status is responsive	Status response time	pass
the first time	Yes	1s	pass

- **Static state test:**

When the tester is still in the detection area of the human presence radar, or when the person just leaves the unmanned environment without entering the unmanned state, the static state will be output (the "active state" triggers the "static state" response time is about 3s)

within the detection range keep still Judging radar status	Radar status when in motion Can output "calm" state means "pass"
--	---

Example test table format:

Testing frequency	Whether the status is responsive	Status response time	pass
the first time	Yes	3s	pass

- **Stateless testing:**

When the detection area is unmanned, the radar will output the unmanned state after a certain period of time judgment.

out of detection range No trigger, no interference, keep for a certain period of time after entering the unmanned state Judging radar status	When the radar state Can hold "None" status means "Pass"
--	---

Example test table format:

Testing frequency	Whether the status is responsive	pass
the first time	Yes	pass

4、Breathing Heart Rate Test:

- **Breathing rate test:**

When the person sits still in front of the radar detection area and the distance is kept within 1.5m, a 3-minute static calm test and a 40-s breath-holding test are performed, and the radar will output the value change of breathing in real time. When it exists, it will report the breath as 0, and report the abnormal breath hold alarm

<p>Sit still in the prescribed test position and take calm breathing for 1 minute</p> <p>Hold your breath for 30s~40s after 1 minute</p> <p>Watch the radar status change</p>	<p>When the radar breathing rate normally outputs the value 1min before, and the breathing value can be reported as 0 times/min after holding the breath for about 30s~40s, and the abnormal breath holding alarm is reported, it means "passed"</p>
---	--

Example test table format:

Testing frequency	Confirm that the breathing rate has the correct numerical change	pass
the first time	Yes	pass

● **Heart rate test:**

When the person sits still in front of the radar detection area and the distance is kept within 1.5m, a 3-minute static calm test is performed, and the radar will judge and output the heart rate value in real time.

<p>Sit still in the prescribed test position</p> <p>And take calm breathing for 3 minutes</p>	<p>When the radar heartbeat frequency is normal, the output value means "pass"</p>
---	--

Check whether the heartbeat value of the radar is reported normally	
---	--

Example test table format:

Testing frequency	Confirm whether the heartbeat frequency has the correct numerical change	pass
the first time	Yes	pass

5. Historical version update instructions

Revision	Release Data	Summary
V1.0_0609	2022/06/09	first draft