

24G Millimeterwave Biosensing Radar

R24BBD1-Respiratory sleep Tuya ZigBee application manual

Please read the product instruction carefully before use and keep it properly V1.0

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1.Device distribution routine steps

(The prerequisite for using Tuya zigbee radar equipment: Tuya

zigbee gateway is required)

1、 Download through the app store: Tuya Smart APP



2、 Click the "red plus sign" in the upper right corner to enter the product category selection page (Figure 2)



(Picture 2)

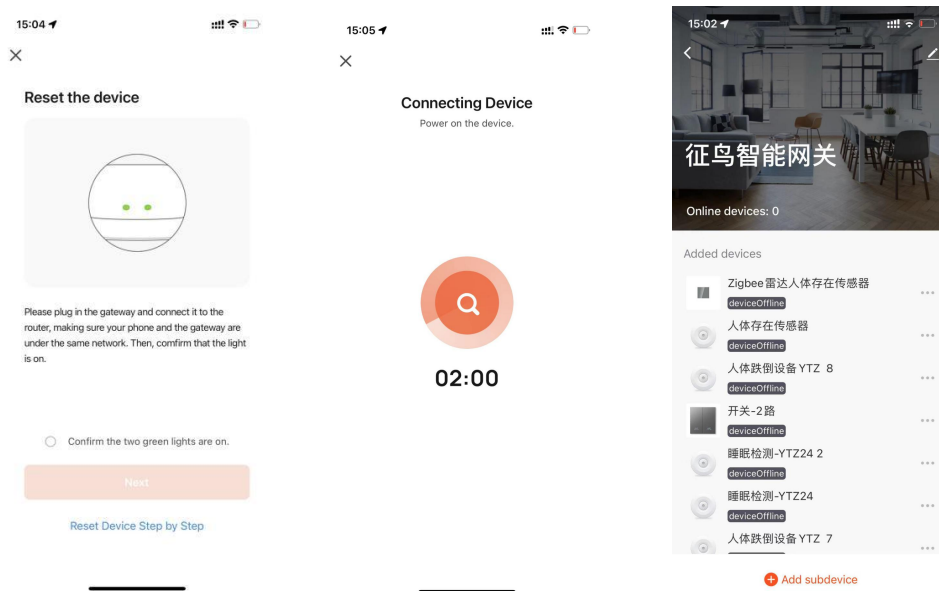


(Figure 3)

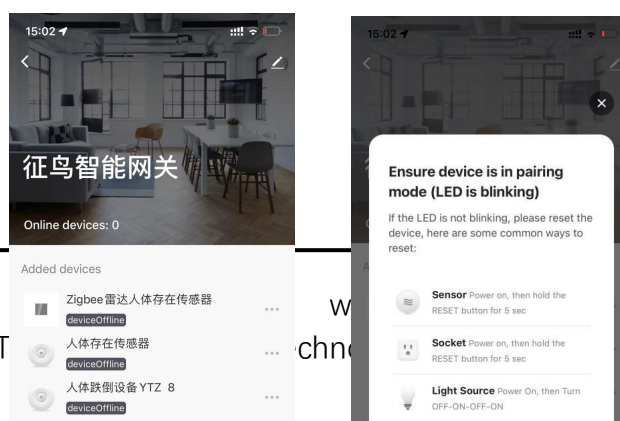
3、 Select the "wired gateway"/"wireless gateway" product in the "gateway central control" category to enter the network configuration page , and configure the network according to the type of gateway you have . (Figure 3)

4、 Press and hold the button on the gateway until the two LED lights are always on, click Next to enter the gateway to automatically search for pairing. After pairing, follow the prompts to add a gateway to successfully configure the network.

(Note: If it is a wired gateway, the mobile phone needs to be connected to the wifi under the router connected to the gateway to connect successfully)



5、 After the gateway is paired and connected successfully, you can click the gateway to enter the gateway, and click [Add sub-device] to add Tuya zigbee device

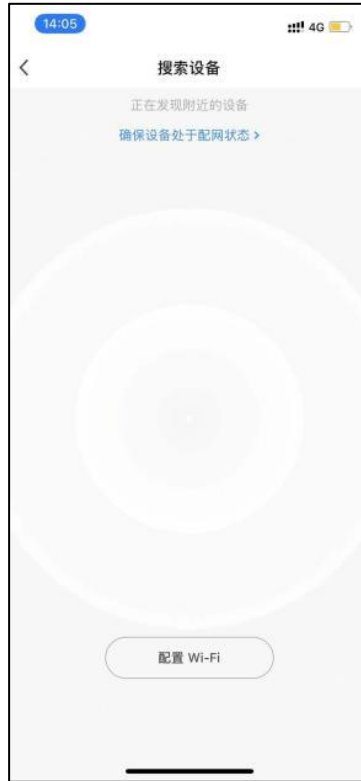


(Picture 5)

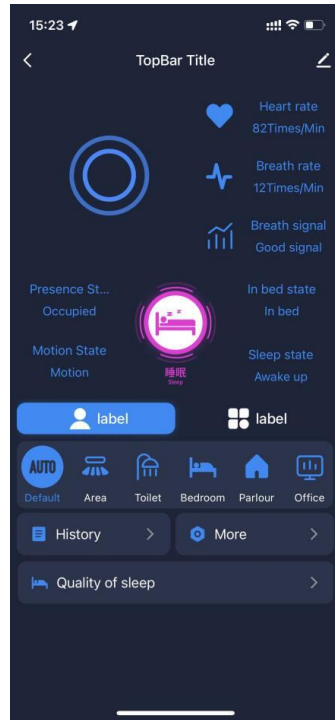
(Picture 6)

6、 Press and hold the button on the radar hardware, let go after seeing the red light change from on to off, and see that the red light starts to flash. At this time, the radar enters the network distribution mode. Click [the indicator light is flashing quickly] to go to the next step. .

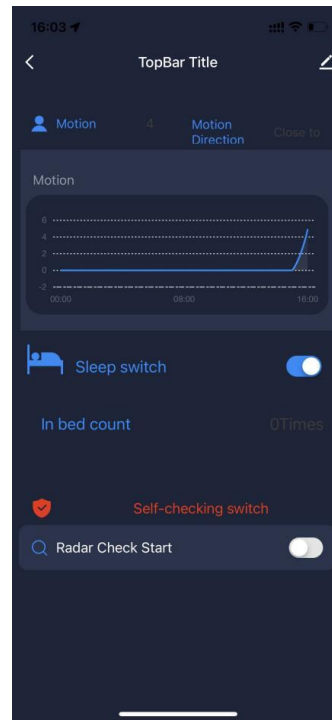
7、 At this time, the gateway will enter the state of continuously searching for zigbee devices. After a while, the gateway can automatically search for relevant radar devices. Follow the instructions to successfully add zigbee devices.



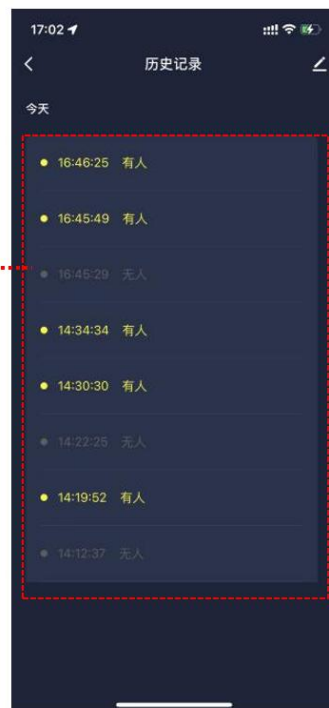
2.APP panel interface introduction



Panel main interface



More function setting interface



History interface



Sleep-related data interface

3.Application scenarios and functions of sleep radar

1.Sleep Radar Installation Scenario Restrictions:

- It is necessary to avoid fans, etc., which will vibrate and rotate metals within the radar detection range .
- When the sleep radar detects sleep, the radar is required to be installed at a height of 1m above the head of the bed, tilted down 45° to the middle of the bed, and ensure that the distance between the radar and the chest is within 1.5m .

2.Main function points of sleep radar:

- Active reporting of bed entry and exit status
- Active reporting of sleep status
- Respiratory rate active reporting
- Respiratory signal active reporting

4.Detailed description of main functions of sleep radar

1. Sleep quality status judgment test:

- Sleep Quality Status Test:

When a sleep test is performed within the radar detection range, the radar will immediately report the relevant status in "awake/light/deep sleep" every 10 minutes

carry out testing	When 10 minutes later, the radar
Simulate sleep for 10 minutes with	sleep state is successfully judged

immobility within range	from awake -> light sleep record radar sleep state If the output can be judged normally, it means "pass"
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Example test table format:

Testing frequency	test location	Whether to report normal sleep state	pass
the first time	front of the radar	Yes	pass

2. Judgment test of entering and leaving bed state:

- **Bed state judgment test:**

When no one enters the radar detection range, it will respond immediately and report the state of entering bed

Install the radar according to the installation requirements of the sleep scene, sleeping area at a speed of at least 0.7m/s	When the radar state changes from getting out of bed - "into bed, it stops at the moment Whether the recording and radar can trigger the bed-in state normally If it can be triggered normally, it means "pass"
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Example test table format:

Testing frequency	Whether entering the detection range normally triggers the bed entry state	pass
the first time	Yes	pass

- **Out-of-bed state judgment 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 state of getting out of bed when it is confirmed that there is no one. (It is normal to enter the unmanned state within 5 minutes in a normal environment)

away from the sleep detection area to avoid interference There are no people moving around in the environment and no interference from sources of interference start the timer	When the radar state changes from entering the bed/someone is still -> leaves the bed and stops for a moment Records radar entry and exit times When reporting "Get out of bed" within 5 minutes, it means "passed"
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Example test table format:

Testing frequency	time to leave bed	pass
the first time	2min10s	pass

3. Breathing 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

Sit still in the specified test position, and breathe calmly for 1 minute, then hold your breath for 30s~40s after 1 minute Watch the radar status change	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"
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Example test table format:

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

5. Historical version update instructions

Revision	Release Data	Summary
V1.0_0520	202 2/05/20 _ _ _ _	first draft