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LD2410C

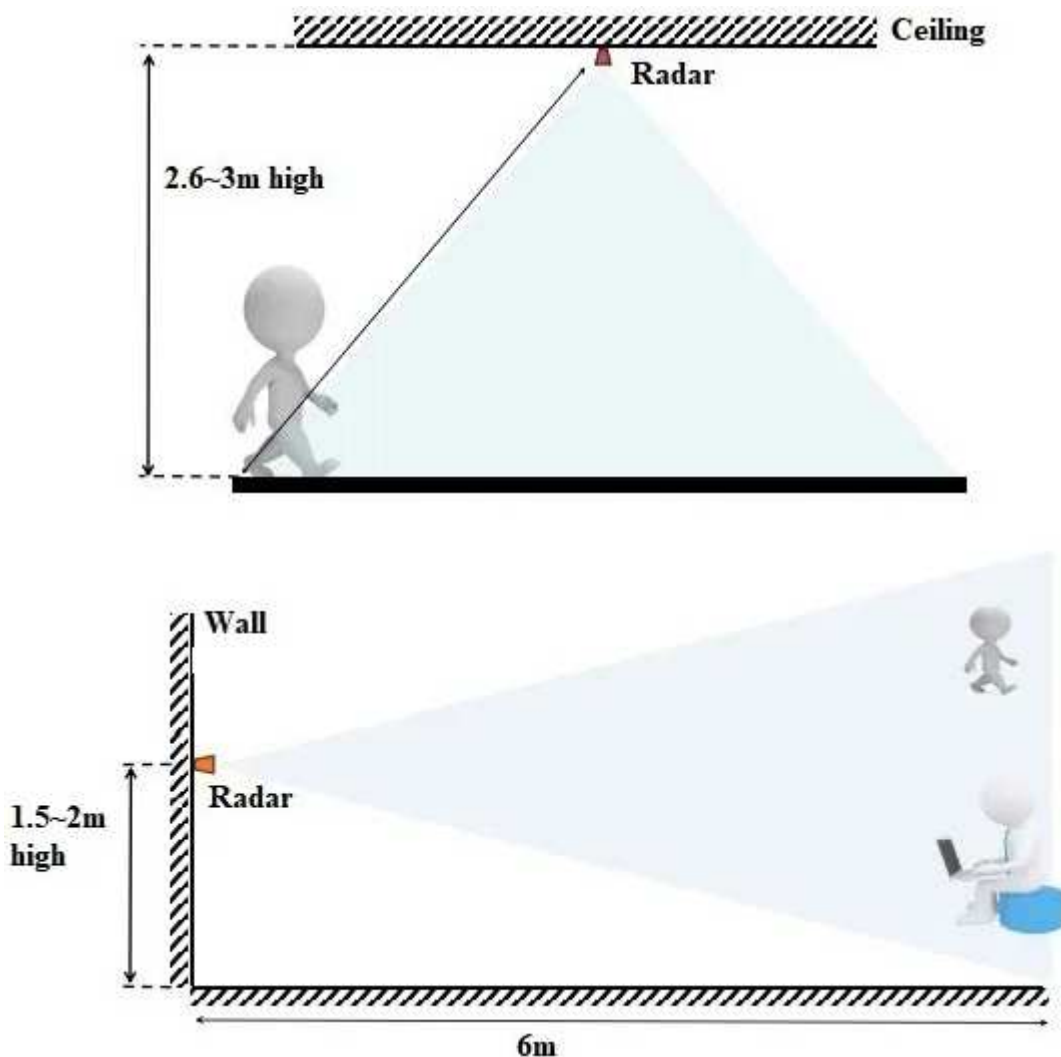
Human presence sensor module, 24GHz, FMCW modulation, GPIO, UART, Bluetooth,
5...12V DC, 0.75...6m, 60°
hestore no.: 100.464.82

1. Product introduction

HLK-LD2410C is a high-sensitivity 24GHz human presence status sensing module developed by Hilink Electronics. Its working principle is to use FMCW frequency-modulated continuous wave, to detect human targets in the set space, combined with radar signal processing, accurate human body induction algorithm, to achieve high sensitive human presence status sensing, which can identify the human body in motion and stationary state, and can calculate auxiliary information such as the distance to the target.

This product is mainly used in indoor scenes to sense whether there is a moving or micro-moving human body in the area, and output the detection results in real time. Farthest sensing distance up to 6 meters, distance resolution 0.75m. Provides a visual configuration tool, which can easily configure the sensing distance range and sensing in different intervals sensitivity and unmanned delay time, etc., to adapt to different specific application needs.

Support GPIO and UART output, plug and play, and can be flexibly applied to different smart scenarios and terminal products.



2. Product Features and Benefits

2.1 Features

Plug and play, easy assembly

The longest sensing distance is up to 5 meters

Large detection angle, coverage up to ± 60 degrees

Accurate identification within the interval, support the division of the sensing range, and shield the interference outside the interval

Multi-level intelligent parameter adjustment to meet the needs of scene changes

Visual debugging and configuration tools

Small and simplified, the minimum size is only 16mmx22mm

Supports various installation methods such as ceiling hanging and wall hanging

24GHz ISM band, compliant with FCC and CE spectrum regulations

5~12V wide voltage power supply

The ultimate cost-effective choice

2.2 Benefits

LD2410C human body sensing module adopts 24GHz millimeter wave radar sensor technology. Compared with other solutions, it has obvious advantages in human body sensing applications:

1. In addition to being sensitive to moving human bodies, it can also sensitively sense static, micro-moving, sitting and lying human bodies that cannot be identified by traditional solutions;
2. It has good environmental adaptability, and the sensing effect is not affected by the surrounding environment such as temperature, brightness, humidity and light fluctuations;
3. It has good shell penetration and can be hidden in the shell to work without opening holes on the surface of the product, which improves the aesthetics of the product;
4. It can flexibly configure the farthest sensing distance and the sensitivity on each distance door to achieve flexible and fine personalized configuration.

3. Application scenarios

- The LD2410C human body sensing module can detect and identify the human body in motion, fretting, standing, sitting and lying down. It supports multi-level parameter adjustment and can be widely used in various scenarios of AIoT. The common types are as follows

- Human body sensor light control

It senses whether there is someone in the space, and automatically controls lights, such as lighting equipment in public places, various sensor lights, bulb lights, etc.

- Human body induction wake-up of advertising screen and other equipment

Automatically turn on when people come, and automatically sleep when no one comes to save power, information delivery is more accurate and efficient

- Life safety protection

UV lamp work protection, to prevent the UV lamp from being turned on when there are people around and causing personal injury

Automatic detection and alarm of dangerous places to prevent people from entering specific high-risk spaces, such as high-risk places entered by personnel from coal mine blasting

- Smart home appliances

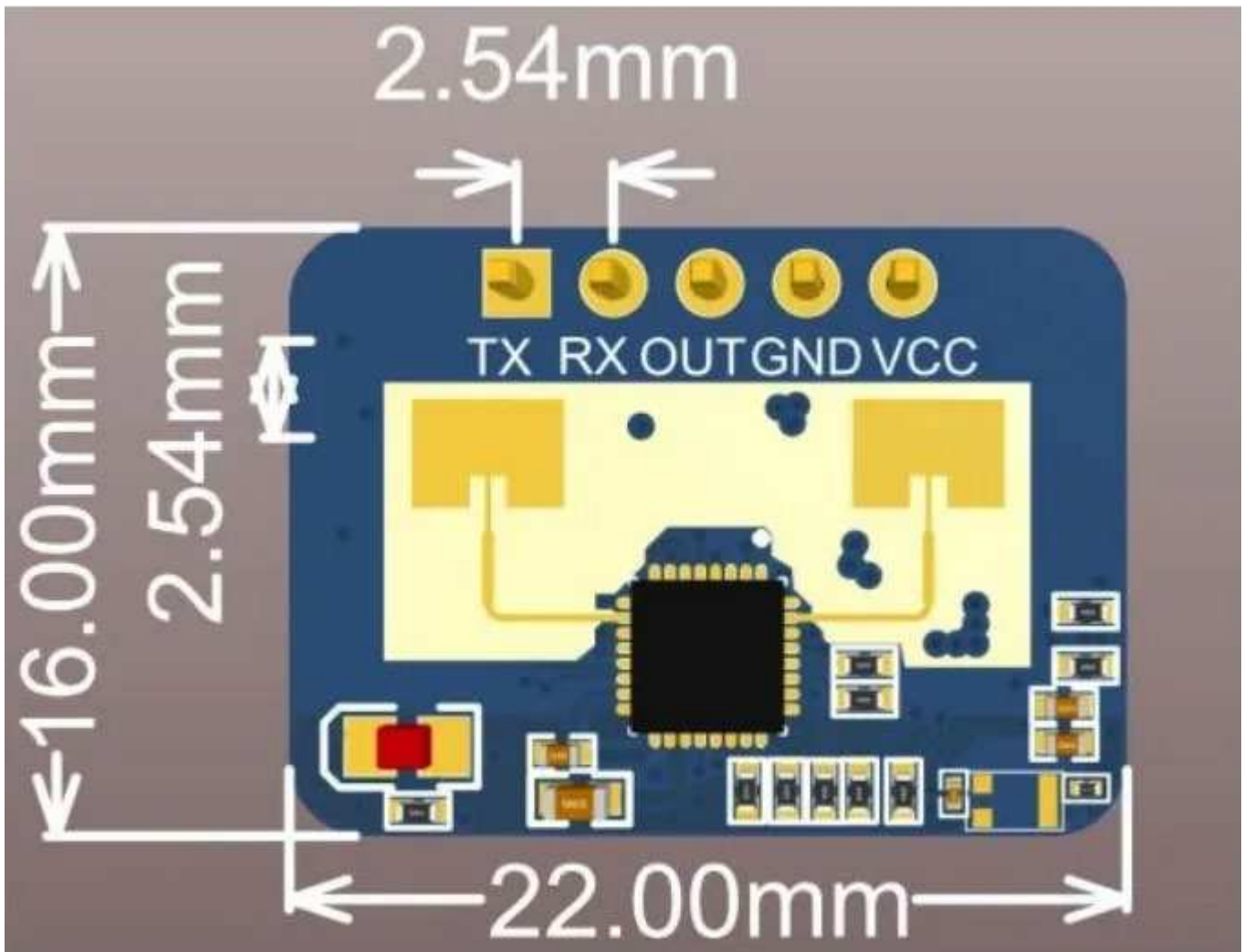
When there is no one in the room for a long time, the TV, air conditioner and other electrical appliances are automatically turned off, saving energy and safety

- Intelligent security

Detection and identification of people intruding, staying, etc. within the specified range

4. Hardware Description

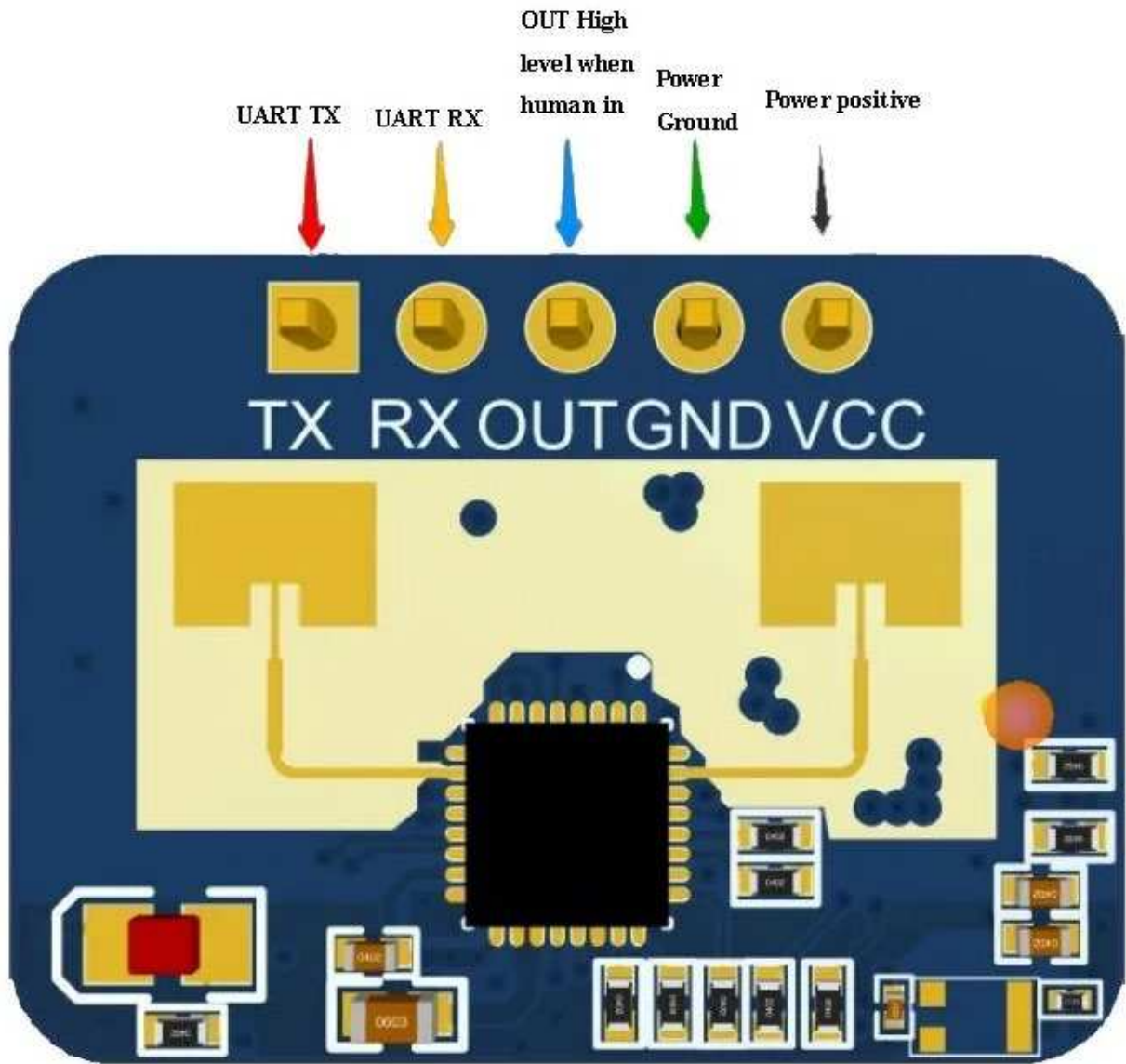
4.1 Features



Module size: 7mmx35mm, 5 pin holes are reserved in the hardware (the factory default does not match the pins)

The pin hole diameter is 0.6mm, and the pin spacing is 2.54mm.

4.2 Pin definition



5. Visual Configuration Tool Description

In order to facilitate the user to test and configure the module quickly and efficiently, a PC configuration tool is provided. The user can use this tool software to connect the serial port of the module, read and configure the parameters of the module, and receive the detection results reported by the module. Data, and real-time visual display, which greatly facilitates the use of users.

How to use the host computer tool:

Use the USB to serial port tool to connect the module serial port correctly

Select the corresponding serial port number in the host computer tool, set the baud rate to 256000, select the engineering mode, and click to connect the device

After the corresponding is successful, click the start button, the right graphical interface will display the test results and data

After connecting, if the start button is not clicked, or click stop after starting, the mode parameter information can be read or set

Note: The parameters cannot be read and configured after clicking start, and configuration can only be performed after stopping.

The interface and common functions of the host computer tool are as follows:



The ball is the target state output indication: red means that there is a moving target, and purple means that there is a stationary target; Green means no one.



red line: the energy value of each stationary target on the distance door
green line: set sensitivity
blue line: the energy value of the moving object on each distance gate

6. Bluetooth instructions

6.1 Install software (English version)

Currently the APP supports Android and IOS platforms, you can download it from this link: <https://www.pgyer.com/Lq8p>(Android)

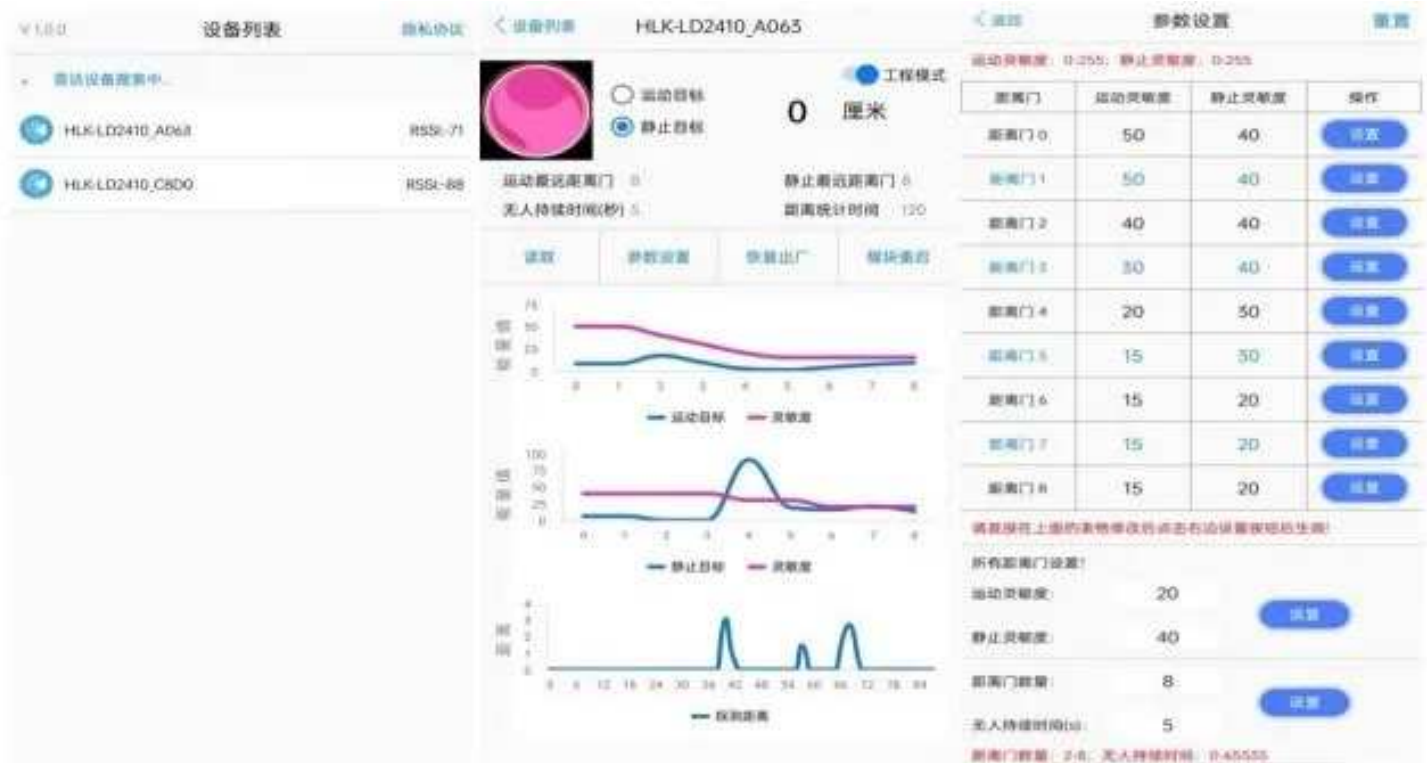
You can also go to major app stores to search for "HLKRadarTools" and install it.



6.2 Instructions

Open the app, and the app searches for nearby radar devices. The broadcast name of the device is "HLK-LD2410C_xxxx" (xxxx is the last four digits of the mac address). After the module is successfully connected, you can view the radar information, or debug and save the parameters.

The use distance of the APP should not exceed the Bluetooth signal range (within 4 meters).



① Search for Bluetooth

② View parameters

③ Modify radar parameters

The process of modifying the radar parameters of the Bluetooth APP is the same as that of the PC host computer tool.

6.3 Turn on bluetooth again

The Bluetooth function of LD2410C is enabled by default, and Bluetooth can be turned off or turned on through the serial port protocol (see LD2410C serial port communication protocol.pdf). If the bluetooth has been turned off, or the serial port cannot be used, the bluetooth can be turned on again after the module is powered off and then powered on for more than 5 times within 2~3s.