



**HLK-LD2420**  
**High**  
**Performance**  
**24 GHz Radar**  
**Module**



# Hi-Link HLK-LD2420 High Performance 24 GHz Radar Module User Manual

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**Hi-Link HLK-LD2420 High Performance 24 GHz Radar Module**

**Product Information:**

HLK-LD2420 is a high-performance 24 GHz radar module with a transmit-receive antenna from Hilink. It utilizes millimeter-wave radar distance measurement technology and advanced signal processing technology for accurate motion detection, micro-movement perception, and human body sensing.

**Main Features:**

- Accurate perception of motion, micro-movement, and standing human bodies
- Maximum sensing distance of 8m for moving human bodies
- Configurable sensing distance range, sensitivity, and refresh time
- GPIO and UART interfaces for flexible application

**Application Scenarios:**

- Smart Home: Control home appliances based on human presence
- Smart Business: Trigger actions based on human proximity
- Smart Security: Used in access control and security systems
- Smart Lighting: Control lighting based on human presence

**System Description:**

The hardware of HLK-LD2420 includes Hilink intelligent millimeter wave sensor SoC, 24 GHz antenna, and main control MCU. The software part features firmware and visual configuration tools for flexible setup of sensing parameters.

**Product Usage Instructions****Firmware Configuration:**

Follow the guidelines provided in the user manual to configure the firmware settings for the HLK-LD2420 module.

**Use of Host Computer:**

Connect the HLK-LD2420 module to a host computer using the GPIO or UART interface. Refer to the user manual for detailed instructions on utilizing the host computer.

### **Sending Commands and ACK:**

To send commands and receive acknowledgments, ensure proper communication setup between the HLK-LD2420 module and the connected devices. Refer to section 5.2 of the user manual for detailed command-sending procedures.

**Important Notice:** This product is shipped from China to our Munich warehouse before final dispatch. Estimated processing time: 2 weeks. Thank you for your patience!

- The HLK-LD2420 is a cutting-edge automotive radar module operating at 24 GHz, designed with a single transmitter and receiver antenna for high-performance human sensing. This radar for automotive employs millimeter-wave (mmWave) radar distance measurement technology, which is integrated with advanced proprietary signal processing technology from the S3 series chips. This combination enables precise detection of human bodies in motion, experiencing micro-movements, or standing still.
- This automotive radar module is primarily utilized in indoor settings to ascertain the presence of moving or slightly moving human bodies and to provide real-time updates on detection. With a maximum sensing range of 8 meters, the HLK-LD2420 can be configured to adjust the sensing distance, sensitivity, and refresh rate across various zones. It supports GPIO and UART interfaces, offering a plug-and-play capability that allows for flexible application in diverse smart scenarios and end products.

### **Product Parameters**

- Single-chip smart millimeter-wave sensor SoC with integrated smart algorithm firmware
- Ultra-compact module dimensions of 20 mm × 20 mm
- Pre-loaded with default body sensor configurations for plug-and-play functionality
- Operates in the 24 GHz ISM band with FCC, CE, and Commission-free spectrum regulatory approvals
- Powered by a 3.3 V supply, compatible with a wide voltage range of 3.0 V to 3.6 V
- Features an average operating current of 50 mA
- Designed for detecting motion and micro-motion in human bodies
- Offers real-time reporting of detection outcomes
- Includes visualization tools to facilitate the configuration of detection distance intervals, sub-interval sensitivity, and results reporting times
- Supports induction range division to completely shield any interference outside the designated zone
- Proximity sensing capability of 0.2 m, eliminating any blind detection zones
- Motion body sensing distance extends up to 8 m
- Features a large detection angle, covering a range of  $\pm 60^\circ$
- Compatible with various installation methods, including ceiling and wall mounting
- Allows independent configuration of trigger and hold states, enhancing anti-interference capabilities

### **Application Scenarios**

The HLK-LD2420, as an automotive radar sensor, is adept at detecting and identifying moving, standing, and stationary human bodies. It finds broad application across various AIoT scenarios, including:

- **Smart Home:** Sensing the presence and distance of human bodies to intelligently control home appliances
- **Smart Business:** Recognizing human bodies approaching or moving away within set distance intervals; timely activation of screens to maintain device operation in the presence of humans

- **Smart Security:** Applications in induction access control, building intercoms, and electronic cat's eyes
- **Smart Lighting:** Identifying and sensing human bodies for precise positioning in public lighting equipment (sensor lamps, bulb lamps, etc.)

## System Description

- The HLK-LD2420 is an intelligent and precise human sensor based on the Hylink S3 series millimeter-wave sensor chip. It operates using FMCW (Frequency Modulated Continuous Wave), in conjunction with radar signal processing and a built-in intelligent human sensing algorithm to detect human targets within a set space and update detection results in real-time. Utilizing Healing Technology's intelligent millimeter-wave sensor reference solution, users can rapidly develop their own accurate body-sensing products with ease.
- The hardware component of the HLK-LD2420 consists of a fully integrated Hylink Smart Millimeter Sensor SoC, a 24 GHz transmitter-receiver antenna, and a host MCU. The software component is equipped with firmware and visual configuration tools provided by Hylink, enabling human body sensing functions with flexible configuration of sensing distance, sensitivity, and reporting time.

## FAQs

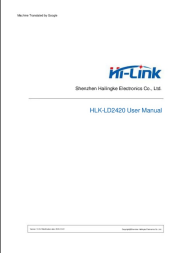
### Q: What is the maximum sensing distance of a moving human body with HLK-LD2420?

A: The maximum sensing distance of a moving human body is 8 meters with HLK-LD2420.

### Q: In which scenarios can HLK-LD2420 be used?

A: HLK-LD2420 can be used in Smart Home, Smart Business, Smart Security, and Smart Lighting scenarios.

## Documents / Resources

	<p><a href="#">Hi-Link HLK-LD2420 High Performance 24 GHz Radar Module</a> [pdf] User Manual LD2420, HLK-LD2420 High Performance 24 GHz Radar Module, HLK-LD2420, High Performan ce 24 GHz Radar Module, 24 GHz Radar Module, Radar Module, Module</p>
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## References

- [User Manual](#)

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