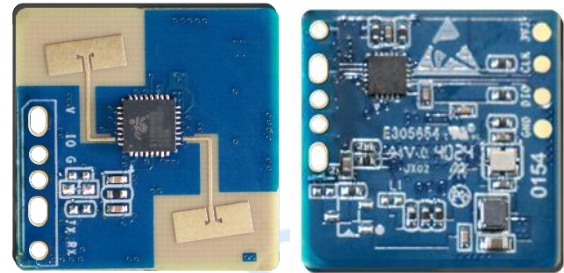# XenD101H Product Specifications

The XenD101H is a stationary human presence sensor of the ICL EZ Sensor series. Compared to its predecessor, the XenD101MM, it has enhanced detection capabilities, capable of detecting stationary sitting humans and added the ability to detect stationary lying humans.

Its hardware, the Xen101_2, is equipped with the AIoT S1 series mmWave sensor SoC, a high-performance 24 GHz single-transmit and single-receive antenna, and peripheral circuits. The built-in human presence detection algorithm utilizes mmWave radar ranging technology and the advanced radar signal processing technology of the S1 series SoC to achieve precise sensing of moving, micro-moving, stationary sitting and lying humans. This algorithm is primarily applied in indoor scenarios.

XenD101H Device Map

Product Features

- Single-chip intelligent mmWave SoC with built-in smart algorithms

- Compact module size: sensor dimensions of 20×20 mm

- Plug-and-play: default human presence detection configuration

- Operating frequency band: 24 GHz ISM band

- Wide voltage support: powered by 3.3 or 5 V, compatible with 3.03.6 V or 4.55.5 V

- Low operating current: average of 50 mA

- Precise detection: capable of detecting moving, slightly moving, and stationary humans, with real-time feedback

- Visualization tools: configure detection distance and delay, automatically generate detection thresholds

- Shield external interference:

- No detection blind spots: detectable at close distances of 0.2 m

- Large detection angle: ±60°

- Installation methods: ceiling mount/wall mount, etc.

- Strong anti-interference: supports customizable sensing range for shielding interference outside, independently configurable trigger/hold states

- Global compliance: can pass FCC/CE/SRRC certifications

Application Scenarios

- **Smart Homes**

  Detect the presence and distance of humans, report detection results, and provide them to the main control module for intelligent control of household appliances.

- **Smart Business**

  Identify humans approaching or moving away within a set range; promptly turn on screens and keep devices lit as long as humans are present.

- **Smart Security**

  Used in sensor-activated door locks, building intercom systems, electronic peepholes, etc.

- **Smart Lighting**

  Detect humans presence with precise position detection, which can be used for lighting equipment in public places (sensor lights, globe lights, etc.)

Characteristics

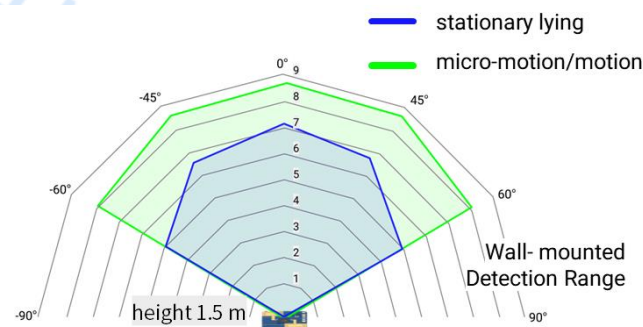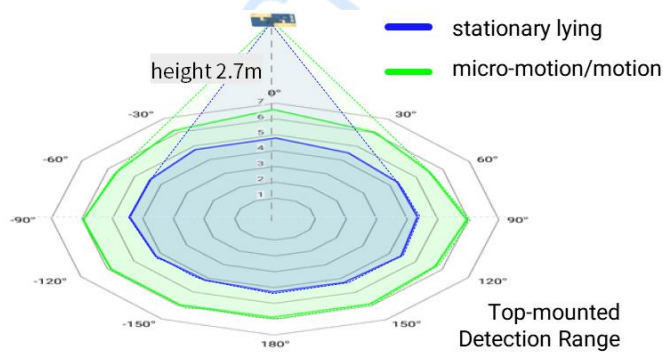| Parameter	Min.	Typ.	Max.	Unit	Description
Hardware Xen101_2 Characteristics					
Operating Frequency	24	-	24.25	GHz	FCC/CE/SRRC compliant
Max. Sweep Bandwidth	-	0.25	-	GHz	
Maximum. EIRP	-	11	-	dBm	Effective Isotropic Radiated Power
Operating Voltage	3.0	3.3	3.6	V	-
Operating Voltage with LDO mounted	4.5	5	5.5	V	-
Hardware Size	-	20 × 20	-	mm^2	-
Environment Temperature	-40	-	85	°C	-
XenD101H System Characteristics[1]					
Detection Range while Wall-mounted (Installation height 1.5 m)	-	8.5	-	m	Moving/Micro-moving human
	-	7	-	m	Stationary lying human
Detection Range while Top-mounted (Installation height 2.7 m)	-	6.5	-	m	Moving/Micro-moving human
	-	4.8	-	m	Stationary lying human
Range Accuracy	-	±0.15	-	m	When detecting moving human within 6 m in radial direction
Average Operating Current	-	50	-	mA	-
Data Report Cycle	-	154	-	ms	-

Illustration of the detection range

---

[1] Note: The detection range is affected by the environment and the user's RCS, so the actual performance is subject to the test results in the application environment.

Application

Pin	Description
3V3	Supply power to the sensor, voltage 3.3 V
GND	Ground
OT1	MCU transfer data port
RX	MCU receive data port
OT2	Output the IO electrical level, with high representing human target is detected, and low representing no target is detected.

ICLEGEND MICRO (Nanjing) Co., Ltd. 1F, Building 3, Zhongke Innovation Plaza, No.150, Pubin Road, Jiangbei New Area, Nanjing, Jiangsu Tel: 025-5818 5297 (-8002) Web: www.iclegend.com	**Online store: Search "ICL i-Selected One Box" on WeChat Mini Program** **Official Account WeChat Mall**