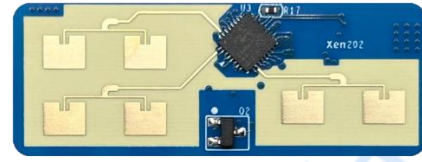


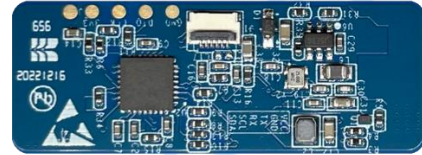
# XenP202TE Product Specifications

XenP202TE is a high-precision multi-person trajectory mmWave sensor of ICL EZ Sensor series, incorporating minimalist 24 GHz mmWave sensor hardware and intelligent algorithm firmware.

The sensor hardware Xen202, consists of the AIoT mmWave sensor SoC ICL1122, high-performance 1T2R microstrip antennas, a low-cost MCU, and peripheral auxiliary circuits. The intelligent algorithmic firmware utilizes FMCW and the advanced signal processing technology specified by the ICL1122.



Top



Bottom

XenP202TE device diagram

## Product Features

- Multi-target detection: Capable of tracking multiple humans, and predicting movement trends precisely.
- Long detection range: The maximum detection range when wall-mounted reaches 8 m.
- Wide field of view: Azimuthal detection range of  $\pm 60^\circ$ .
- IAP upgrade: Support upgrading through UART.
- Minimalist module size: 15 mm  $\times$  40 mm
- Frequency band compliance: FCC/CE compliant.

## Application Scenarios

- **Smart Homes**  
Detect human presence, report results in real time, enable the MCU to control smart domestic appliances such as air-conditioner and fans accordingly;
- **Smart Business**  
Detect human approach or leaving in specified range to turn on/off devices;
- **Smart Bathroom**  
Enable smart toilets to automatically open and close the lid;
- **Smart Lighting**  
Detect human body presence and location precisely, applicable to domestic lighting (sensing lights, lamps, etc.)

## Characteristics

| Parameter                               | Min. | Typ.           | Max.  | Unit             | Description                      |
|---|------|----------------|-------|------------------|----------------------------------|
| <b>Hardware Xen202 Characteristics</b>  |      |                |       |                  |                                  |
| Operating Frequency                     | 24   | -              | 24.25 | GHz              | FCC, CE and SRRC compliant.      |
| Sweep Bandwidth                         | -    | 0.25           | -     | GHz              | -                                |
| Operating Voltage                       | -    | 5.0            | -     | V                | -                                |
| Size                                    | -    | 15 $\times$ 40 | -     | mm <sup>2</sup>  | -                                |
| Environment Temperature                 | -40  | -              | 85    | $^\circ\text{C}$ | -                                |
| <b>XenP202TE System Characteristics</b> |      |                |       |                  |                                  |
| Detection Range (Wall-mounted)          | -    | 8              | -     | m                | Moving human in normal direction |

|                           |     |      |    |    |                                      |
|---------------------------|-----|------|----|----|--------------------------------------|
| Field of View             | -60 | -    | 60 | °  | Corner reflector in normal direction |
| Range Accuracy            | -   | 0.15 | -  | m  | Corner reflector in normal direction |
| Angle Accuracy            | -   | 2    | -  | °  | -                                    |
| Average Operating Current | -   | 97   | -  | mA | -                                    |
| Data Refresh Rate         | -   | 10   | 19 | Hz | -                                    |

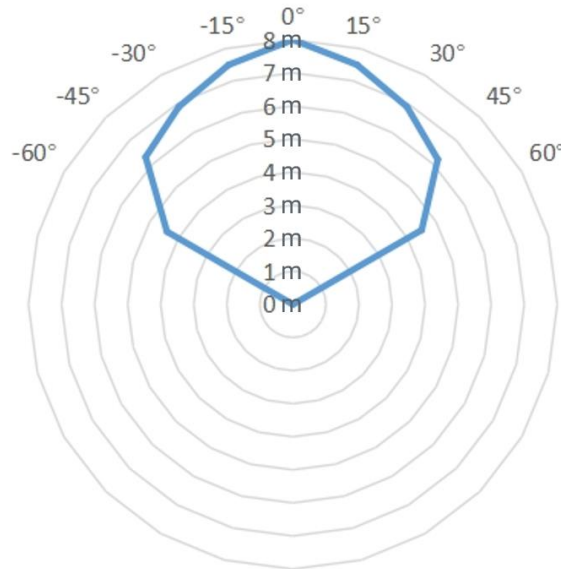
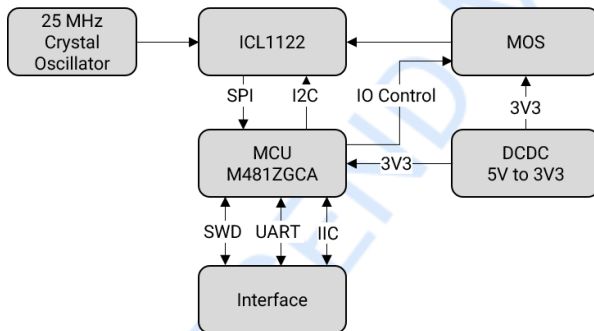


Illustration of XenP202TE detection range



## Application



System block diagram

| Pin | Description                   |
|-----|-------------------------------|
| VCC | Power supply pin, voltage 5 V |
| GND | Ground                        |
| TX  | MCU data output port          |
| RX  | MCU data input port           |
| SCL | IIC clock signal              |
| SDA | IIC data signal               |

Pin function description

|   |  |
|---|--|
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