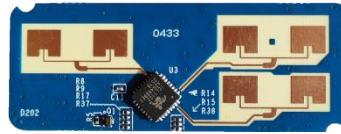


XenP202T Series Product Specifications

The XenP202T Series is a high-precision multi-target detection millimeter-wave sensor from ICL MICRO EZ Sensor series, integrating simplified 24 GHz mmWave hardware and intelligent algorithm firmware.

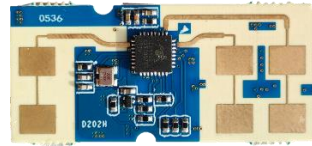
The XenP202T mmWave sensor Series includes XenP202TE, XenP202TH, XenP202TS, and XenP202TV, which are all built with: AIoT mmWave radar SoC ICL1122, High-performance 1T2R microstrip antenna array, cost-optimized MCU and peripheral circuits. The firmware leverages FMCW modulation and ICL1122's proprietary advanced signal processing technology for superior detection accuracy.



XenP202TE Top



XenP202TE Bottom



XenP202TH Top



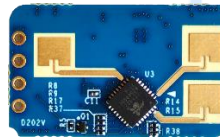
XenP202TH Bottom



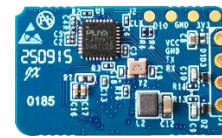
XenP202TS Top



XenP202TS Bottom



XenP202TV Top



XenP202TV Bottom

Product Features

- **Intelligent Multi-Target Tracking:** Simultaneously detects and tracks multiple dynamic targets in real time.
- **Long-Range Detection:** Wall-mounted detection range up to 9.7 meters.
- **Wide-Angle Coverage (Azimuth):**
XenP202TE, XenP202TH $\pm 70^\circ$;
XenP202TS, XenP202TV: $\pm 60^\circ$
- **Seamless Firmware Upgrades:** Supports wireless updates via UART (IAP).
- **Ultra-Compact Module Size:**
XenP202TE: 15 mm \times 40 mm
XenP202TH: 15 mm \times 34 mm
XenP202TS: 7 mm \times 30 mm
XenP202TV: 25 mm \times 15 mm
- **Global Compliance:** FCC/CE compliant.

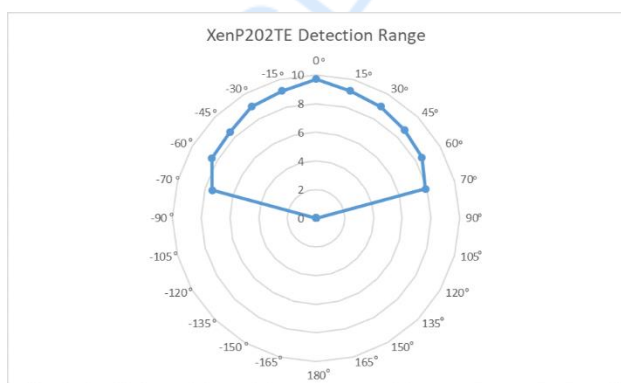
Application Scenarios

- **Smart Home:** Detects human presence and distance, enabling automated appliance control.
- **Smart Business:** Triggers screen activation when users approach and maintains operation during presence.
- **Smart Bathroom:** Enables automatic toilet lid control in intelligent sanitary systems.
- **Smart Lighting:** Provides precise motion sensing for public/office lighting (e.g., sensor bulbs, downlights).

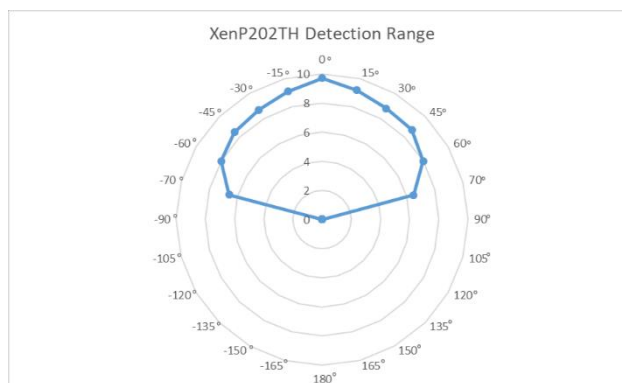
Characteristics

Parameter	Description	Min.	Typ.	Max.	Unit
Xen202 Series Hardware Characteristics					
Operating Frequency	-	24	-	24.25	GHz
Max. Sweep Bandwidth	-	-	0.25	-	GHz
Operating Voltage	XenP202TE, XenP202TH	-	5	-	V
	XenP202TS, XenP202TV	-	3.3	-	
Hardware Size	XenP202TE	-	15 x 40	-	mm × mm
	XenP202TH	-	15 x 34	-	
	XenP202TS	-	7 x 30	-	
	XenP202TV	-	25 x 15	-	
Environment Temperature	-	-40	-	85	°C
XenP202T Series System Characteristics					
Detection Range	Normal direction	-	9.7	-	m
FOV (Field of View)	XenP202TE, XenP202TH	-70	-	70	°
	XenP202TS, XenP202TV	-60	-	60	°
Ranging Accuracy	Normal direction with corner reflector	-	0.15	-	m
Angle Accuracy	Normal direction with corner reflector	-	2	-	°
Operating Frequency	FCC, CE, and SRRC compliant	24	-	24.25	GHz
Operating Sweep Bandwidth		-	0.23	-	GHz
Refresh Frequency	Sensor data reporting frequency	-	10	16	Hz
Average Operating Current	XenP202TE (5 V power supply)	-	50	-	mA
	XenP202TH (5 V power supply)	-	50	-	mA
	XenP202TS (3.3 V power supply)	-	75	-	mA
	XenP202TV (3.3 V power supply)	-	75	-	mA

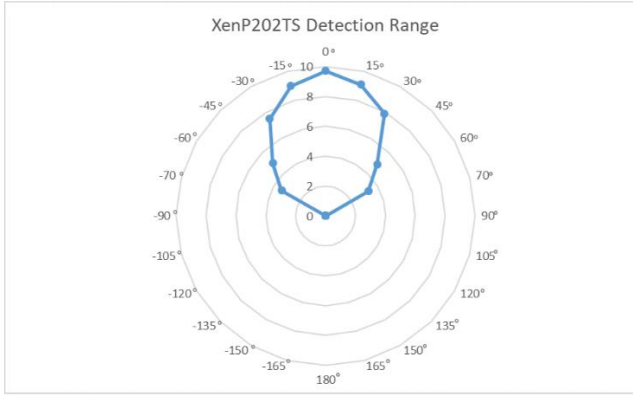
Detection Range



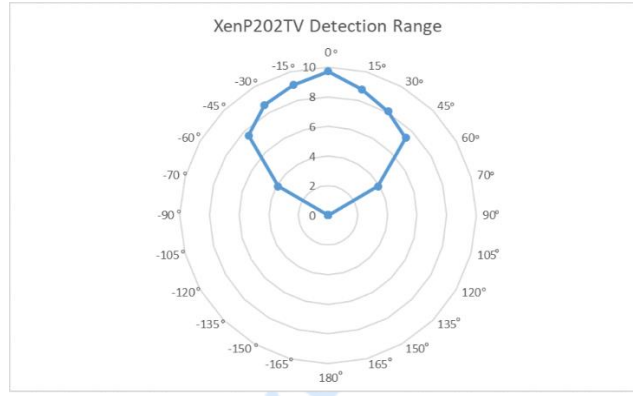
XenP202TE Detection Range



XenP202TH Detection Range

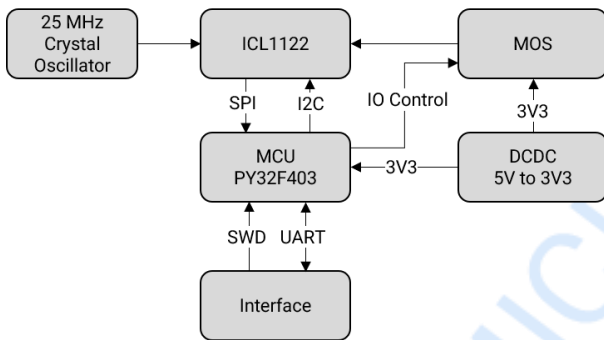


XenP202TS Detection Range



XenP202TV Detection Range

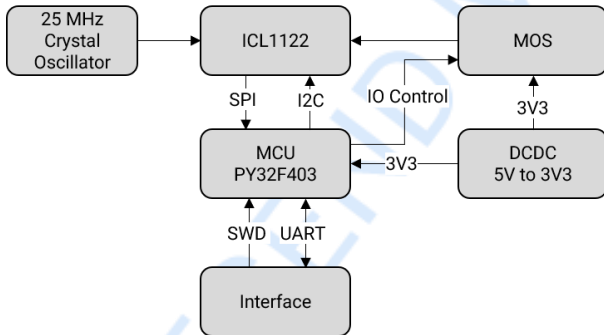
Application



XenP202TE System block diagram

XenP202TE Pin function description

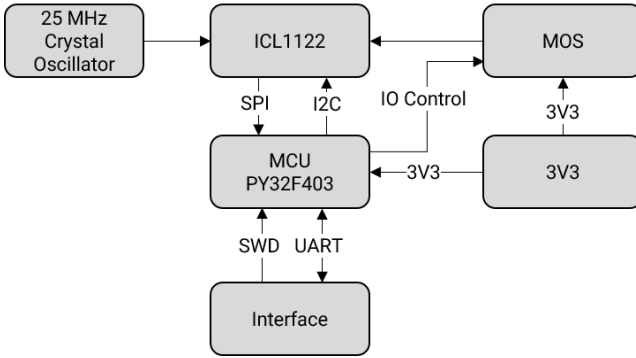
Pin	Description
VCC	Power supply pin, voltage 5 V
GND	Ground
TX	UART TX
RX	UART RX



XenP202TH System block diagram

XenP202TH Pin function description

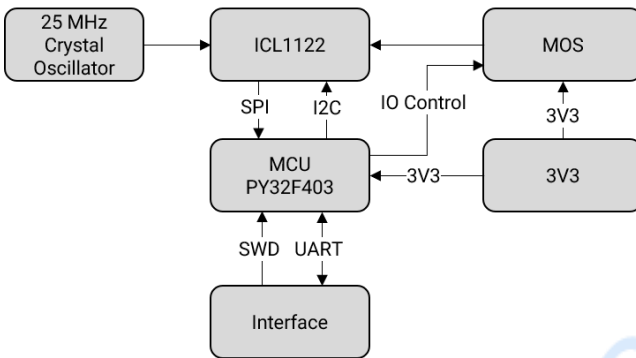
Pin	Description
5V	Power supply pin, voltage 5 V
G	Ground
T	UART TX
R	UART RX



XenP202TS System block diagram

XenP202TS Pin function description

Pin	Description
R	RX
T	TX
G	Ground
V	Supply power to the sensor, voltage 3.3 V



XenP202TV System block diagram

XenP202TV Pin function description

Pin	Description
RX	RX
TX	TX
GND	Ground
VCC	Supply power to the sensor, voltage 3.3 V

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