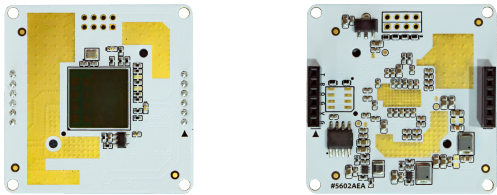


M680

The M680 (Model: CTL-SEN-M/680) is an industrial-grade 60GHz millimeter-wave radar sensor module designed for advanced spatial perception. Powered by a high-performance radar SoC and a 4T4R antenna array, it delivers ultra-high resolution for 4D spatial sensing, precise micro-motion detection, and zone-based monitoring. The module comes with factory-calibrated algorithms, allowing developers to integrate complex radar functionalities—such as trajectory tracking and fall detection—simply through power supply and UART data parsing, significantly reducing R&D cycles and costs.



Features

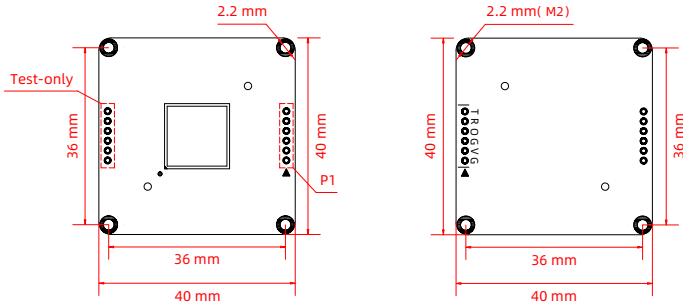
- Accurately captures active movements (walking, waving) and static presence (minute chest movements from breathing).
- Capable of outputtin real-time coordinates and tracking the movement paths of targets within the detection zone.
- Supports fall detection and bed exit/entry monitoring using high-quality human point cloud data to characterize posture and action.
- Leverages a 4T4R antenna array to achieve superior resolution and precise environmental mapping.
- Pre-integrated with optimized algorithms; requires only DC 5V power and UART communication for full functionality.

Specifications

Detection Technology	60GHz mmWave Radar (FMCW)
Antenna Configuration	4 Transmit, 4 Receive (4T4R)
Operating Frequency	60 GHz to 64 GHz
Transmit Power	≤ 10 dBm
Detection Angle	360°
Installation Height	2.5 to 3.2 meters
Detection Range	Max Diameter ≤ 6.0 meters
Communication Interface	UART (3.3V TTL)
Power Input	DC 5 V / 1 A
Power Consumption	Max: 3.0 W / Average: 1.5 W
Dimensions	40 mm × 40 mm × 4 mm
Weight	≤ 10 g
Operating Temperature	-10°C to +50°C

Dimensions

The module uses a single-row 2.0mm * 6P connector for power and data.



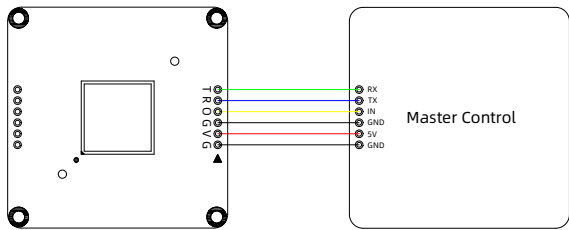
Interface (P1 User)

Pin	Description	Level	Function
T	TX	3.3V TTL	UART Transmit
R	RX	3.3V TTL	UART Receive
O	IO	3.3V TTL	Reserved GPIO
G	GND	GND	Power Ground
V	VCC	5V	Power Supply Input (+)
G	GND	GND	Power Ground

Electrical Characteristics

Parameter	Min	Typ	Max	Unit
Operating Voltage	4.5	5	5.5	V
Operating Current	-	-	1.0	A
Operating Temp	-10	-	+50	°C
Storage Operating	-20	-	+60	°C

Connection Method



Detection Range

