

AI Care Sensor (mmWave Radar Sensor)

Supporting movement monitoring and fall detection via connected platforms

The AI Care Sensor is a compact, multi-technology device designed to support continuous, non-intrusive monitoring in care, housing and assisted living environments, and for integration with care platforms to enable alerts and workflow-driven responses.

At its core, the device combines mmWave radar sensing (60GHz) with Wi-Fi and Bluetooth connectivity, enabling real-time insight into presence and movement without the need for cameras or wearables.

Using FMCW radar technology, the sensor detects motion, position, and activity changes within a space by analysing reflected radio signals. This allows for accurate, always-on monitoring that works in all lighting conditions while maintaining full privacy for the individual.

The device is engineered for reliability and compliance, operating at very low power levels and meeting key European standards for:

- Radio performance (EN 300 328)
- Electromagnetic compatibility
- Health and safety (including RF exposure)

With integrated wireless connectivity, the AI Care Sensor transmits data to connected platforms, where it can be translated into meaningful insights, alerts and trends to support proactive and preventative care.

Key benefits

- Privacy-first monitoring – no cameras or audio
- Continuous sensing – not reliant on user interaction
- Accurate detection – beyond basic motion sensing
- Low-power radar operation (<0 dBm EIRP) – suitable for long-term deployment
- Standards-compliant – designed for regulated environments

In simple terms

The AI Care Sensor quietly monitors what is happening in a room—so care teams can understand changes, respond earlier and support better outcomes, without being intrusive.

AI Care Sensor (mmWave Radar Sensor) – Technical Specifications

General

PARAMETER	SPECIFICATION
Product Type	AI Care Sensor with integrated radar, Wi-Fi and Bluetooth
Model	HC2 / FD02 variants
Application	Indoor monitoring for care, housing and assisted living
Installation	Wall or ceiling mounted
Operating Environment	Indoor use

Radar (mmWave) Performance

PARAMETER	SPECIFICATION
Radar technology	FMCW (Frequency Modulated Continuous Wave)
Operating frequency	60.5 – 62.5 GHz
Radar Function	Presence, movement and position detection
Low-power radar operation	<0 dBm EIRP (typical -2.21 dBm)
Detection Capability	Continuous detection of movement and activity changes
Spectrum	60GHz licence-exempt spectrum

Wireless Communication

PARAMETER	SPECIFICATION
Wi-Fi frequency	2.4 GHz (2412 – 2472 MHz)
Bluetooth frequency	2.4 GHz (2402 – 2480 MHz)
Maximum EIRP (Wi-Fi)	17.53 dBm
Maximum EIRP (Bluetooth)	9.52 dBm
Connectivity	Wireless data transmission to connected platforms

Modulation & Radio Technologies

PARAMETER	SPECIFICATION
Wi-Fi modulation	OFDM (64QAM, 16QAM, QPSK, BPSK)
DSSS modulation	CCK, DQPSK, DBPSK
Bluetooth modulation	GFSK
Radar modulation	FMCW (60GHz band)

Power

PARAMETER	SPECIFICATION
Power Supply	DC 5V (via USB or host unit)
Operation	Continuous

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General

PARAMETER	SPECIFICATION
Radio standard	EN 300 328 V2.2.2
EMC standards	EN 301 489 series, EN 55032, EN 55035
Electrical safety	EN IEC 62368-1
RF exposure	EN IEC 62311, EN 50665
RED Directive	Directive 2014/53/EU (RED) compliant
Certification	EU-Type Examination Certified

RF Performance Standard

PARAMETER	SPECIFICATION
RF Output Power	PASS
Power Spectral Density	PASS
Occupied Bandwidth	PASS
Spurious Emissions	PASS
Receiver Performance	PASS

Environmental & Operational

PARAMETER	SPECIFICATION
Use Case	Residential, care and supported living environments
Operation Type	Continuous monitoring device
Data capture	Radio-based sensing (no audio or video)

Device Characteristics

PARAMETER	SPECIFICATION
Sensing type	Radio frequency (mmWave radar)
Privacy	No camera, no microphone
Detection type	Presence, movement and activity changes
Integration	Compatible with external platforms and systems

In simple terms

A low-power, multi-radio sensor combining 60GHz radar, Wi-Fi and Bluetooth to continuously detect presence and movement while remaining fully privacy-preserving and standards compliant.