Product brief

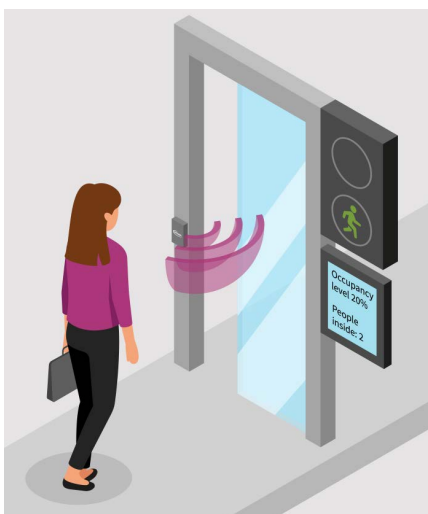# Smart entrance counter solution with XENSIV™ 60 GHz radar

Real time count of number of people entering and/or exiting a premises with XENSIV™ 60 GHz radar

Smart entrance counter solution counts the number of people entering and exiting a premises such as supermarket, pharmacy, office buildings etc. It helps the business owners to determine the occupancy of their premises, enabling various solutions such as maintaining social distancing inside the premises, evacuating during emergency and saving energy based on occupancy. The entrance counting data can be sent to a centralized server, therefore, many sensors can be interconnected. In addition, the statistics collected by the central server can be displayed remotely on a laptop or mobile devices to understand the occupancy level of the facility.
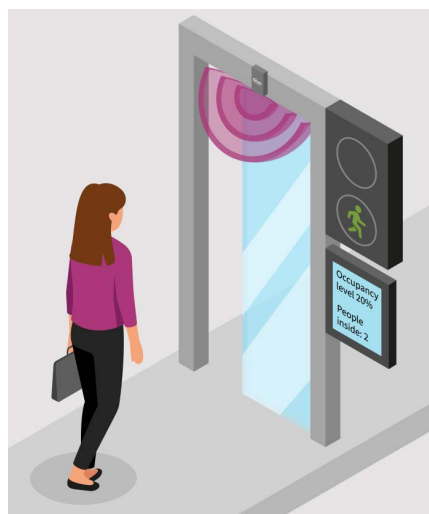
Infineon's radar entrance counter solution enables the real time count of people entering or exiting the premises. Enabled by our XENSIV™ 60 GHz radar with its sophisticated radar entrance counting algorithm, this solution provides high accuracy counting without delay. A User Interface (UI) is provided to configure range and sensitivity for optimal performance.

Key features

- › A turnkey embedded solution for entrance counting
- › Uses PSoC™ 6 MCU based on ARM™ Cortex M4F (120 MHz, 256 KB RAM, 1024 KB FLASH)
- › Size, cost and performance optimized module
- › FCC certifiable reference design
- › Interfaces UART, USB, SPI/I2C, and GPIO
- › 0.35 – 3 m configurable range for ceiling/top and side mount at the entrance
- › Field of View: Azimuth: ± 45°, Elevation: ± 40°
- › Small size: 2.0 x 1.5 cm

60 GHz radar mounted at the side of the door

60 GHz radar mounted at the top/ceiling of the door

Key benefits

- › Ready-to-use radar solution for entrance counting with adjustable detection range
- › Bidirectional counting – one sensor per entrance
- › Indicate stop sign for the second person on the dashboard for maintaining social distancing*
- › Radar sensor immune to environmental factors such as temperature, wind, sunlight, and dust/debris
- › 100 percent GDPR compliant
- › A fully tested and verified solution for entrance counting at retail, office and commercial buildings

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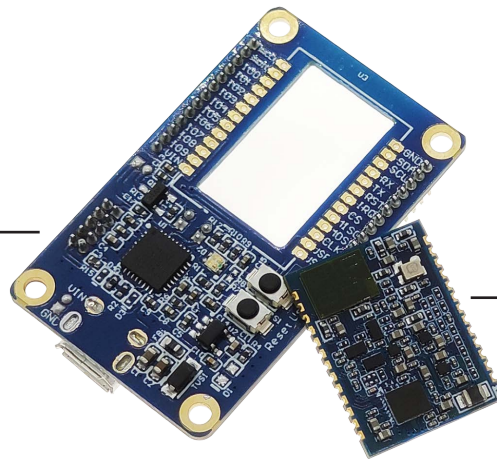* Feature can be enabled or disabled based customer requirements

Smart entrance counter solution with XENSIV™ 60 GHz radar

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Title	Description
Field of view and radar orientation	› Azimuth: ± 45°, Elevation: ± 40°
Movement detection range (configurable)	› Configurable range up to 3 m › Minimum range: 0.35 m › Supported moving object speed (m/sec): up to 2.0 m/sec › Static objects (non-living) are not detected
Detection timings	› Able to count people going in or out of the entrance with one sensor

Configurability	› Easy configuration options micro USB port for the end user to change various parameters via:
	  – Standard configuration mode (e.g. detection range, sensitivity, reset etc.)
	  – Expert mode (macro/micro modes, scan, thresholds, ADC sampling rate, gain etc.)
	› The detection range, sensitivity/thresholds and status settings are stored in the flash and remain set after power reboot

Target platform	› An embedded FF board (PSoC™ 6 MCU based on ARM™ Cortex M4F, 120 MHz Speed, 256 KB RAM, 1024 KB FLASH) for entrance counting using XENSIV™ BGT60TR13C, as a hardware reference platform
Hardware interfaces	› UART, USB, SPI/I2C and GPIO
Certifications	› Smart entrance counter solution is certifiable for FCC certification. Test report to be provided on request
Field upgrade	› Ability to upgrade (secure) the radar FF board firmware in the field via USB or SWD interface
Target applications	› Retail, offices and buildings
Test conditions	› Radar chip mounted on the ceiling of the door at the entrance or mounted on the side of the entrance passage › 18-24°C ambient › Humidity 35-70%

Radar I/O board

Radar FF board
(Reference Hardware Platform)

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