

ARG SENSOR MODULE · OCCUPANCY & TRAFFIC RADAR

ARG mmW-Pro

60 GHz mmWave Occupancy, People-Counting & Traffic Radar · TI IWR6843 · ARG IP

Rev A · August 2026 | **Status:** Available for OEM integration | **Interface:** ARG Common Host API (UART)

- 60 GHz mmWave
- Range to 180 m
- No camera · no PII

Built on the Texas Instruments IWR6843 single-chip mmWave sensor.

OVERVIEW

The ARG mmW-Pro is a 60 GHz FMCW mmWave radar sensor built on the Texas Instruments IWR6843. It measures range, velocity, and angle simultaneously to detect presence, count people or vehicles, and report zone-level occupancy or traffic data — without capturing a single image or storing any personal information. The same platform scales from short-range indoor occupancy to long-range outdoor traffic monitoring at up to 180 m.

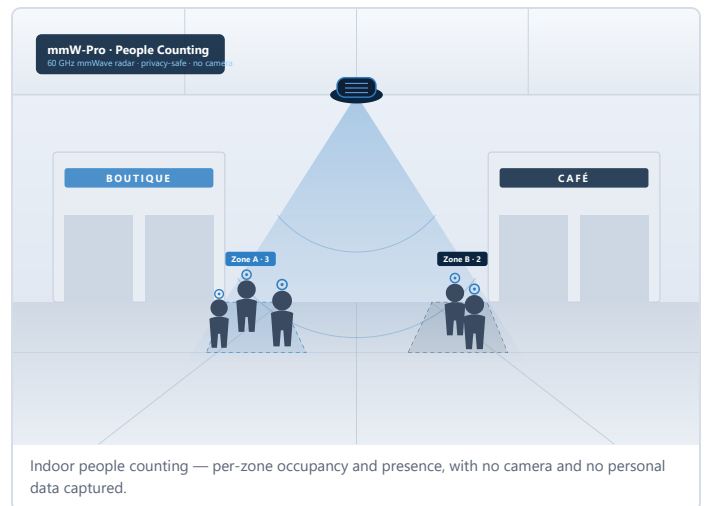
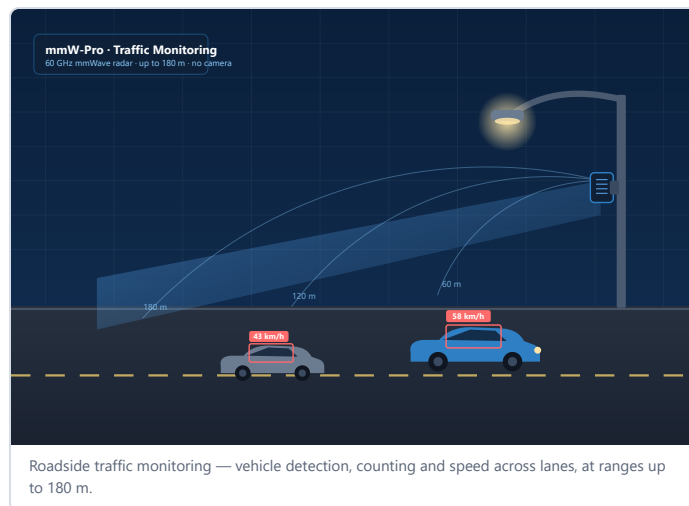
Because it senses with reflected radio waves, the mmW-Pro is unaffected by darkness, glare, rain, or fog, and reveals nothing personally identifiable. It exposes the ARG Common Host API — the same binary UART interface used across every ARG module — so a host controller receives occupancy counts, presence state, and target tracks without touching the radar signal chain. Up to 250 detected points and 20+ simultaneous targets are tracked at once.

Measures, doesn’t watch. Radar counts and tracks people and vehicles with no camera and no PII — inherently privacy-safe and GDPR-compatible, indoors or in public spaces.

ELECTRICAL & SENSING SPECIFICATIONS

Radar Technology	60 GHz FMCW mmWave radar (TI IWR6843 single-chip)
Measurements	Range, velocity (Doppler) and angle of arrival — simultaneously
Antenna Configuration	3 TX / 4 RX integrated on-chip
Sweep Bandwidth	Up to 4 GHz (60–64 GHz band)
Range Resolution	~4 cm (at full 4 GHz sweep)
Detection Range	Configurable — ~6 m indoor occupancy, up to 180 m long-range for traffic (per TI traffic-monitoring reference design)
Field of View	Up to 120° azimuth (occupancy); ~100° (long-range traffic)
Tracking Capacity	Up to 250 detected points; 20+ simultaneous targets
Detection Modes	People counting, zone occupancy, presence (indoor); vehicle detection, counting & speed (traffic)
Host Interface	ARG Common Host API — UART, binary framed; outputs occupancy count, presence state, target/track list
Power Supply	5 V DC
Housing	4.3" (109 mm) circular enclosure (indoor); weatherproof enclosure for outdoor/traffic variant
Mounting	Wall, ceiling, pole or gantry
Operating Temperature	–20°C to +85°C
Environment	Indoor, or outdoor with weatherproof enclosure
Privacy	No camera, no image capture, no PII — inherently GDPR-compatible

IN THE FIELD



DETECTION MODES & APPLICATIONS

INDOOR · BUILDINGS

- People counting & zone occupancy for HVAC and lighting control
- Presence / vacancy detection and meeting-room utilisation
- Retail footfall, dwell time and queue depth
- After-hours presence and security alerts

OUTDOOR · ROADWAYS & PUBLIC SPACE

- Vehicle detection, counting & speed across multiple lanes
- Intersection and free-flow traffic monitoring, queue length
- Stopped-vehicle and wrong-way-vehicle detection (ITS)
- Pedestrian & vehicle flow in plazas, campuses and parking

INTEGRATION

The mmW-Pro connects over the ARG Common Host API — a binary UART protocol identical across every ARG comm and sensor module, so the same host integration is reused across products. Detection zones and range are configurable in firmware; the sensor reports occupancy counts, presence state, and per-target track data. Powered from a single 5 V DC rail. Supplied in a 4.3" indoor enclosure for wall or ceiling mounting, or a weatherproof enclosure for pole- and gantry-mounted outdoor and traffic use.

WHY MMWAVE RADAR

Unlike cameras and PIR, mmWave radar works in total darkness, bright glare, rain, and fog, and captures no imagery — there is nothing personally identifiable to store or breach. It resolves not just presence but distance, speed, and angle, so one sensor serves people counting indoors and vehicle speed measurement outdoors. Operating in the licence-free 60 GHz band, it needs no spectrum permit.