

TOPGRD®

Smart Intersection & Highway Management

A cost-effective multi-lane 4D radar with a compact form factor and low power consumption, providing reliable traffic detection for intersections and highways.

The traffic management sensor with Pixel High Definition (PxHD) resolution detects stopped and moving motorized vehicles as well as Vulnerable Road Users (VRUs) in both approaching and receding travel directions.

Key Features



Forward-firing

TOPGRD's wide beam allows flexible roadside mounting (poles, gantries, etc.) at moderate heights, minimizing occlusion issues and providing the best coverage possible.



Coverage of large areas, replacing multiple loops

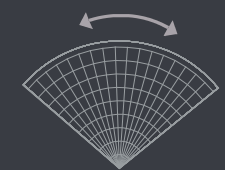
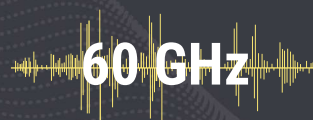


Compliant with European Road Regulations



Maintenance-free

Frequency



Field of view of up to 64°

Range of up to 181 m

Covering up to 8 lanes

Why choose the TOPGRD ?

No privacy concerns ✓

A major advantage of radar detection is the high privacy protection, as they do not capture identifying images.

Above-Ground Detection ✓

Mounted on existing Infrastructure. Their flexible reconfiguration ensures accurate detection as traffic patterns change.

Unaffected by weather ✓

Radar sensors provide accurate detection in all weather conditions. TOPGRD is unaffected by rain, fog, or darkness.

Precise Trajectory Tracking ✓

Tracks each vehicle's exact path and movement in real-time – even in complex traffic scenarios.

RADAR versus LOOP

TOPGRD eliminates the need for costly and disruptive road works for installation. One smartmicro sensor replaces up to 32 loops with configurable detection zones and does not require maintenance. The combined stop bar and advance detection with a single device saves hardware costs.

- ✓ No Road Cutting
- ✓ Maintenance-free

Seamless Tracking

Multiple TOPGRD sensors can be synchronized by an edge device, combining data into one single object list for a complete intersection. Each road user is tracked seamlessly with a unique ID, using our proprietary Super Resolution AI Tracking, enabling precise turning movement counts and analysis of complex movements such as through/right turns or left/U-turns from a single lane.

Where to use ?



Safety of VRUs



Intersection Management



Highway Management



Smart Cities

It is the perfect fit for urban and interurban traffic detection applications.

GET IN TOUCH

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PERFORMANCE

Long-Range Mode

Operating Frequency		61...61.5GHz 2 center frequencies (bands)
Range	Minimum	1.84m
	Max.: Passenger Car ²	181m
	Max.: Truck	181m
	Instrumented ³	181m
	Separation	≤ 1.84m
	Accuracy	< 0.45m or 1% (bigger of)
Speed	Min./Max.	-320...+320km/h
	Separation	<0.6km/h
	Accuracy	<+0.3km/h or 1% (bigger of)
Angle	Field of View: Azimuth ⁴	-32...+32°
	Field of View: Elevation	-23...+23°
	Accuracy: Azimuth ⁵	≤ 0.5°
	Accuracy: Elevation	≤ 0.5°

Mechanical Details

Weight	≤ 410g ≤ 14.46oz
Dimensions (H/W/D)	114.7 x 97.5 x 38mm 4.4 x 3.8 x 1.5in (plus connector)

Further Information

Initialization Time	< 10s
Processing Latency	2-4 cycles
Operating Voltage ⁶	7...32V
Power Consumption	<5W
Update Cycle Time	≤60ms or ≤50ms ⁷

² Typical values; all values given for bore sight; they may vary depending on the clutter environment. Please note that the radar system can neither achieve a detection probability of 100% nor a false alarm rate equal to zero.

³ The instrumented range indicates the maximum range at which the sensor can effectively process detections.

⁴ The total field of view is an angle interval in which reflectors can be detected; 3dB field of view is narrower.

⁵ Typical value; measured at target output level at bore sight, for a point reflector showing >23dB SNR. Error may increase towards larger angles. In addition to this angle error, angle may drift over temperature, typically -0.5deg to + 0.5deg over specified operation temperature interval.

⁶ Measured at the connector.

⁷ Depending on selected application (intersection or enforcement).

