

TRUGRD® Line

Premium Radar Sensors for Traffic Management

The smartmicro **TRUGRD Premium Line** delivers unmatched detection performance. It includes high-resolution radar sensors, with or without integrated camera, that detect and track vehicles, pedestrians, and cyclists simultaneously, in multiple lanes and directions. All sensors are maintenance-free and deliver ultra-precise real-time data even in complete darkness or harsh weather conditions.



Safety of VRUs



Intersection Management



Highway Management



Smart Cities

24 GHz

To use worldwide and meets the requirements of a variety of local regulations.

Frequency



TRUGRD

Outperforms Competitors in Accuracy and Reliability.

The sensor is ideal for intersection, highway management and enforcement applications. With a field of view of 110° the sensor can monitor up to 12 lanes and 256 objects simultaneously.

TRUGRD Stream

3D/UHD+ Radar Technology Combined with Video.

TRUGRD Stream is an all-in-one solution combining the benefits of radar and video.

Its integrated camera with supreme low-light performance provides live-streaming video for traffic management purposes.



TRUGRD Stream Hybrid

Combines High-Definition video with Radar Sensors to Enhance Stop Line Vehicle Detection at Signalized Intersections. This all-in-one, fully integrated solution enables safer and more efficient traffic flow, optimized for fast deployment with minimal impact on infrastructure.

Key Features

All TRUGRD Sensors share the following core features:

3D/UHD+ Radar Technology

for precise object position, speed, direction, and elevation

Simultaneous Multi-Lane, Multi-Object Tracking

of up to 256 objects in up to 12 lanes

Robust and Maintenance-Free Design (IP67, -40 °C to +74/80 °C)

Worldwide Certified 24 GHz Technology with minimal power consumption

Integrated Self-Monitoring Features
Radar misalignment detection, sensor self-calibration, blind zone alerts, rain level measurement

GET IN TOUCH

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Where to use ?

Urban & Intersections ✓

Stop bar detection, advanced presence, dilemma zone protection, wrong-way detection, multimodal tracking (vehicles, bicycles, pedestrians)

Highways & Tunnels ✓

Vehicle classification and counting, queue detection, incident detection, shoulder lane monitoring

Enforcement ✓

Red-light enforcement, speed enforcement, average speed section control

Smart City Projects ✓

Infrastructure-to-Vehicle communication, multimodal traffic management, data collection and analysis

Why Choose TRUGRD Sensors?

- ✓ **Best-In-Class Detection**
performance with UHD+ resolution
- ✓ **Fail-Safe Traffic Management:** full object detection under all environmental conditions
- ✓ **Multimodal Tracking** for Smart City and V2X applications
- ✓ **Flexible & Scalable** choose the right model for your use case and upgrade when needed
- ✓ **Reduced Cost of Ownership** no maintenance, low power, fewer devices required
- ✓ **Future-Proof Integration** with smartmicro's COM HUB and Traffic WEB UI software tools

	TRUGRD	TRUGRD Stream	TRUGRD Stream Hybrid
CAMERA MODULE		Color camera with IR cut filter and supreme low light performance	
Resolution, Frame Rate		1920 x 1080 px, up to 30 fps	
Video Codec		H.265, H.264, MJPEG	
Embedded Video Analytics		no	yes

PERFORMANCE

Operating Frequency	24.0 ... 24.25 GHz ¹		
Resolution	3D measurement with UHD+ resolution		
Detection Range Pedestrian	125 m 410 ft		
Detection Range Passenger Car	260 m 853 ft		
Detection Range Truck/Bus	300 m 984 ft		
Min. Detection range (at 6m/20ft installation height)	1.5m 4.9ft		
Range Separation	2 m 6.6 ft		
Range Accuracy	< ± 0.25 m < ± 0.82 ft		
Speed min ... max	-320 ... +320 km/h -199 ... +199 mph		
Speed Separation	0.23 m/s		
Speed Accuracy	< ± 0.1 m/s		
Number of Lanes	Up to 12 for highway management, up to 8 for intersection management		
Field of View Azimuth (horizontal)	110°		
Field of View Elevation (vertical)	20°		
Angle Separation Azimuth	< 6°		
Angle Accuracy Azimuth	< 0.5°		

MECHANICAL

Weight	1290 g 45.5 oz	1575 g 55.5 oz
Dimensions	213 x 155 x 32 mm or 8.4 x 6 x 1.3 in+ connector	

GENERAL

Update Cycle Time	50 ms ²	
Operating Voltage / Power Consumption	7 ... 32 V / 9.5 W	7 ... 32 V / 11 W
Operating Temperature	-40 ... +74°C or -40 ... +165°F	
Interfaces	RS485 full duplex; Ethernet 10/100; 1x CAN V2.0b (passive)	Ethernet ³
Connector	Hirose LF10 series	
IP	67	

¹ In certain regions, frequency intervall starts at 24.05 GHz.

² Depending on the application - Speed Enforcement 50 ms; Intersection and Highway Management 100 ms.

³ Necessary for video output.

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