**smartmicro**
SMART MICROWAVE SENSORS
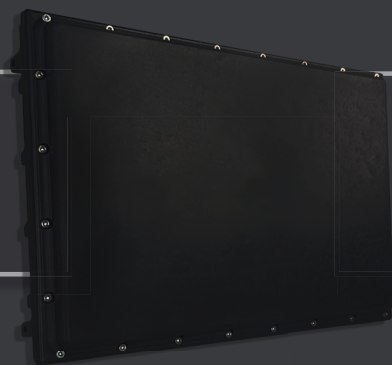
THE MOST ADVANCED DETECTION TECHNOLOGY

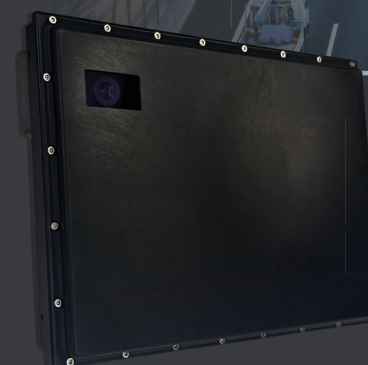# TRUGRD® | **Premium Line**

### TRUGRD ®
3D/UHD⁺ SENSOR
Range of up to 300m | 984ft

### TRUGRD ® LR
3D/UHD⁺ SENSOR
Range of up to 500m | 1640ft

### TRUGRD ® STREAM
3D/UHD⁺ SENSOR
combined with video

**RECOMMENDED FOR:**

- SMART CITIES
- INTERSECTION MANAGEMENT
- HIGHWAY MANAGEMENT
- STATIONARY ENFORCEMENT
- BRIDGE MONITORING
- RED-LIGHT ENFORCEMENT
- TUNNEL MONITORING

## OPTIMIZING TRAFFIC FLOW

- ✓ 3D/UHD+ resolution
- ✓ Fail-safe features
- ✓ Multi-lane, multi-object detection
- ✓ Detects moving and stopped traffic
- ✓ Reliable tracking of pedestrians and cyclists (VRUs)
- ✓ Works in all weather conditions

| | TRUGRD ® | TRUGRD ® Stream | TRUGRD ® LR |
|---|---|---|---|
| **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 | |
| **PERFORMANCE** | | | |
| Operating Frequency[1] | 24.0 ... 24.25 GHz | | 24.0...24.25 GHz |
| Resolution | 3D measurement with UHD+ resolution | | 3D measurement with UHD+ resolution |
| Detection Range Pedestrian | 125 m \| 410 ft | | 229 m \| 751 ft |
| Detection Range Passenger Car | 260 m \| 853 ft | | 500 m \| 1640 ft |
| Detection Range min ... max | 1.5 ... 300 m \| 4.9 ... 984 ft | | 3 m...510 m \| 10 ft...1673 ft |
| Range Separation | 2 m \| 6.6 ft | | 4.8 m \| 15.74 ft |
| Range Accuracy | ± 0.25 m \| ± 0.82 ft | | ± 0.5 m \| ± 1.64 ft |
| Speed min ... max | -320 ... +320 km/h \| -199 ... +199 mph | | -210...+210 km/h \| -130...+130 mph |
| Speed Separation | 0.23 m/s | | 0.24 m/s |
| Speed Accuracy | < ± 0.1 m/s | | < ± 0.1 m/s |
| Number of Lanes | Up to 12 lanes | | Up to 8 lanes |
| Field of View Azimuth | -55° ... +55° | | -20...+20° |
| Field of View Elevation | -10° ... +10° | | -9...+9° |
| Angle Separation Azimuth | < 6° | | < 2.5° |
| Angle Accuracy Azimuth | < 0.5° | | < 0.25° |
| **MECHANICAL** | | | |
| Weight | 1290 g \| 45.5 oz | 1575 g \| 55.5 oz | 1290 g \| 45.5 oz |
| Dimensions | 213 x 155 x 32 mm or 8.4 x 6.1 x 1.3 in + connector | 213 x 155 x 32 mm or 8.4 x 6.1 x 1.3 in + camera module | 213 x 155 x 32 mm or 8.4 x 6.1 x 1.3 in + connector |
| **GENERAL** | | | |
| Update Cycle Time | 50[2] ms | | 100 ms |
| Operating Voltage / Power Consumption | 7 ... 32 V / 9.5 W | 7 ... 32 V / 11 W | 7...32 V / 9.5 W |
| Operating Temperature | -40 ... +80°C or -40 ... +176°F | -40 ... +74°C or -40 ... +165°F | -40...+80°C \| -40...+176°F |
| Interfaces | RS485 full duplex; Ethernet 10/100; 1x CAN V2.0b (passive) | Ethernet[3] | RS485 full duplex; Ethernet 10/100; 1xCAN V2.0b (passive) |
| Connector | Hirose LF10 series | Hirose LF10 series | Hirose LF10 series |
| IP | 67 | 67 | 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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