

# govcomm

Intelligent Transportation Systems

Microwave Vehicle Detection System

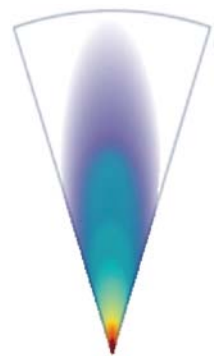
**Standard Definition Microwave Sensor  
Technical Specifications - Model GC-R160**

## Key Attributes

- Traffic Data Statistics
- Intersection Management
- Presence Detection
- Classification
- Incident Detection
- Wrong Way Detection
- Auto Configuration Tool
- All Weather Operation
- Maintenance Free
- Field Proven
- Precise Individual Vehicle Speed
- Simultaneously Tracks up to 64 Objects



GC-R160



- Separation in Speed

Version 2.5



Product picture and technical specifications are subject to change without notice.  
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# Overview

GovComm's standard definition microwave sensor is a decades-old highly available and proven technology. With the ability to track 64 objects in its field of view simultaneously and a passenger car detection range of up to 524 feet (over 1,000 feet for trucks), this microwave sensor is a perfect fit for most intelligent transportation system applications. GovComm microwave vehicle detection systems are equipped with a stainless steel three-dimensional mounting bracket, junction box mounting adapter, hardened media converter and cables.

GovComm microwave vehicle detection systems are offered as stand-alone solutions or for integration into intersection management, advance detection, presence detection, traffic data statistics, wrong-way and other intelligent transportation system applications.



\*Typical values; may vary to higher or lower values depending on clutter environment. All values given for bore sight. Please note that the MVDS – like any other sensor system – although well optimized, will not achieve a 100% detection probability and will not achieve a false alarm rate equal to zero.



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# Technical Specifications for GovComm Microwave Vehicle Detection System Standard Definition - Model GC-R160

## Table 1: General Performance Data

Parameter	Value
<b>Sensor Performance</b>	
Range Pedestrians	164 feet <sup>I</sup>
Range Passenger Cars	524 feet <sup>I</sup>
Minimum Range	5 feet
Range accuracy	> 97.5%
Minimum Absolute Radial Speed	0.3 Feet per Second
Speed accuracy	99% <sup>II</sup>
Angle Interval (field of view)	-6 to +6 (Elevation); -18 to +18 (Azimuth) degree <sup>III</sup>
Update time	≤ 50ms
Simultaneously tracked objects	Up to 64
<b>Environmental</b>	
Ambient Temperature	-40°F to +185°F
Shock	100g <sup>rms</sup>
Vibration	14g <sup>rms</sup>
Ingress Protection	IP67 <sup>IV</sup>
Pressure / Transport Altitude	0 to 33,000 feet
<b>Mechanical</b>	
Weight	12oz
Dimensions	3.89 inches x 4.33 inches x 1.69 inches
<b>General</b>	
Power Supply	7 to 32 VDC <sup>V</sup> / 3.7W
Frequency Band	24.0 to 24.25 GHz
Bandwidth (self-adaptive)	Up to 100 MHz
Maximum Transmit Power (EIRP)	20 dBm
Interfaces	CAN V2.0b (passive) <sup>VI</sup> / RS485
Connector	8 Pin Plug Binder Series 712 (CAN, Power, RS485)

<sup>I</sup> Typical values; may vary to higher or lower values depending on clutter environment. All values given for bore sight. Please note that the MVDS – like any other sensor system – although well optimized, will not achieve a 100% detection probability and will not achieve a false alarm rate equal to zero.

<sup>II</sup> Measured on object having constant radial speed, at bore sight.

<sup>III</sup> Total field of view is angle interval where reflectors can be detected; 3dB field of view is narrower.

<sup>IV</sup> IP 67 only when connector or cap attached.

<sup>V</sup> Measured at connector; minimum voltage slew rate 500V/s or maximum voltage rise time 15ms; supply source impedance 0.5Ohms.

<sup>VI</sup> It is recommended to use an external surge protector for power, CAN, RS485 and other interface ports.



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# Technical Specifications for GovComm Microwave Vehicle Detection System Standard Definition - Model GC-R160

## Table 2: Standard Configuration for Counting and Statistics

Parameter	Value
Traffic Direction	Approaching & Receding
Mounting Height	Recommended 20 feet (Range 15 to 35 feet) <sup>I</sup>
Sensor Azimuth Angle	Recommended $\pm 8$ degrees (Range $\pm 18$ degrees) <sup>II</sup>
Sensor Elevation Angle	Recommended 0 degrees (Range $\pm 6$ degrees) <sup>II, III</sup>
Counting Line Distance (Approaching)	Recommended 115 feet (Range 66 feet to 164 feet) <sup>IV</sup>
Counting Line Distance (Receding)	Recommended 295 feet (164 feet to 525 feet) <sup>IV</sup>
Setback	Recommended 3 feet (0 to 33 feet)
Counting Accuracy	> 95% <sup>V</sup>
Common Classes	Motorcycles, Passenger Cars and Trucks

<sup>I</sup> May affect maximum detection range. Occlusion needs to be considered.

<sup>II</sup> Smaller absolute angles allow longer detection range along a road.

<sup>III</sup> Application specific. Gantry mount: steeper elevation. angle possible, with limitations of maximum range. Negative elevation angle means sensor pointing towards road.

<sup>IV</sup> Typical value for counting applications; may be different for other applications.

<sup>V</sup> Typical value when properly installed at suitable location. The counting and classification accuracy typically depends on the following main (and other) factors: mounting height, traffic density.

## Table 3: Standard Configuration for Stop Bar Detection

Parameter	Value
Traffic Direction	Approaching
Mounting Height	Recommended 20 feet (Range 15 to 35 feet) <sup>I</sup>
Sensor Azimuth Angle	Recommended -8 degrees (Range $\pm 15$ degrees) <sup>II</sup>
Sensor Elevation Angle	Recommended -6 degrees (Range -9 to 0 degrees) <sup>II, III</sup>
Stop Bar Distance	Recommended 115 feet (Range 66 feet to 164 feet) <sup>IV</sup>
Advance Detection Distance	Recommended 443 feet (Range 164 feet to 524 feet) <sup>IV</sup>

<sup>I</sup> May affect maximum detection range. The best performance is typically achieved for mounting heights between 7 to 26 feet. Occlusion needs to be considered.

<sup>II</sup> Smaller absolute angles allow longer detection range along a road.

<sup>III</sup> Application specific. Gantry mount: steeper elevation angle possible, with limitations of maximum range. Negative elevation angle means sensor pointing towards road.

<sup>IV</sup> Typical value for stop bar applications; may be different for other applications.

