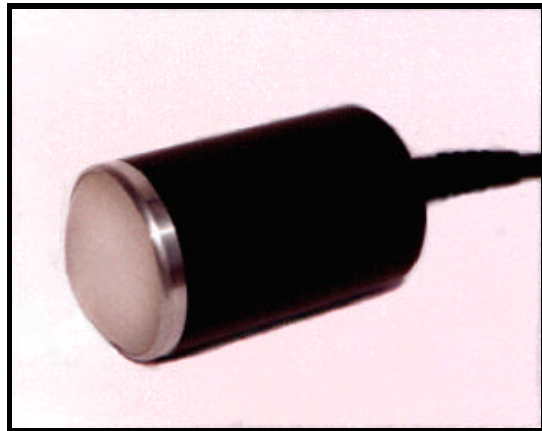


The Delta Speed Sensor is an inexpensive, non-contact Doppler radar speed sensor suitable for a wide variety of applications. Small and lightweight, it requires only a small DC power source, making it ideal for situations requiring portability or remote sensing.

The Delta Speed Sensor may be placed on a moving vehicle or mounted stationary. It can measure surface speeds, such as vehicle ground speed or it can be used to measure the speed of a moving target. The target can be anything from a wire passing under the sensor to a vehicle a thousand feet away.

The output of the sensor is a pulse with frequency proportional to measured speed. The aggregate number of pulses may also be used to determine surface length or distance traveled. The sensor can interface directly with many different types of off-the-shelf hardware, such as digital tachometers, or can be integrated into electronic control or data acquisition systems.



Features

- Non-contact speed measurement
- Inexpensive
- Digital pulse output automatically enabled according to signal strength or target presence
- Small, lightweight
- Low power requirement
- Weather resistant

Typical Applications

- Vehicle ground speed measurement
- Amusement park ride testing
- Conveyor belt operations
- Motion sensing
- Speed control
- Traffic monitoring
- Length or Distance Measurements

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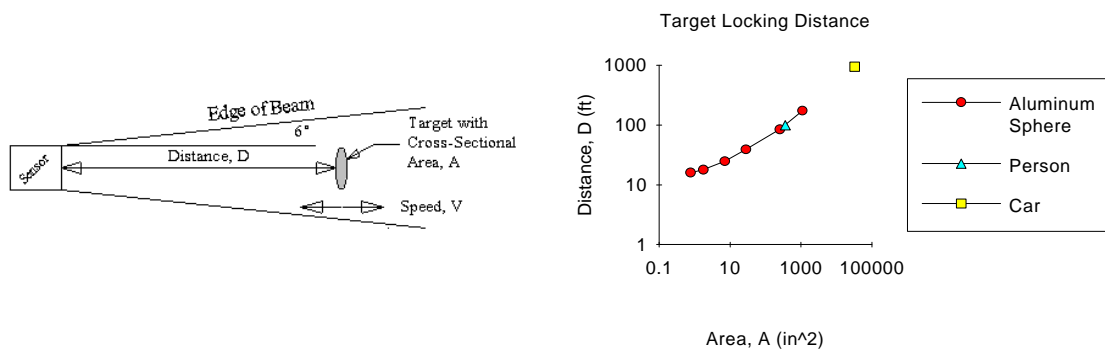


Figure 1 -- Locking Test Diagrams: Target moving along beam center axis (0° velocity offset angle)

Specifications

Output: 0-5V square wave, differential line driver; 211.6 Hz/MPH ¹

Update Period: 0.01 sec.

Speed Measurement:

Range: 1-300 MPH

Total Unadjusted Error (worst case): ²
 $\pm (0.36\% + 0.0016\%/MPH)$

Sensor Response:

Locking Latency: 0.02 sec.

Unlocking Latency: 0.05 sec.

Sensor Time Constant: 0.025 sec.

Max. Target Distance: over 1000 ft. (305 m.)
 (See Figure 1 - Locking Test)

Microwave Characteristics: ³

Frequency: Ka Band 35.5 ± .1 GHz,

Beam Divergence Angle: 6° from center

Average RF Power: 0.02 W max

Effective Radiated Power: 0.98 W

Power Supply: 10.5 - 16.5 VDC, 2.4 W

Temperature Range: 0 to 140°F (-17 to 60°C)

Enclosure: Weather resistant

Weight: 0.5 lb. (230 g)

- Notes: ¹ Output requires cosine correction for any offset angle between target direction of travel and beam center axis.
² i.e.: ±0.36% @ 1MPH, ±0.46% @ 65MPH, ±0.84% @ 300MPH (this is for sensor only - overall accuracy of speed measurement is also influenced by external factors such as alignment, vibration, clutter, etc.)
³ Regulated under FCC regulations Part 90, Subpart F. Contact GMH Engineering for details.

Physical Dimensions and Electrical Interface

Wiring: Red: Power +
 Black: Power -
 Green: Signal +
 White: Signal -

Optional mounting brackets available

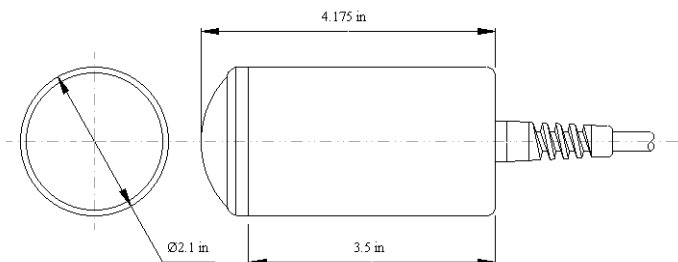


Figure 2 - Sensor Dimensions (not to scale)

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