

# STALKER® Radar Speedometer Speed Sensor

## GENERAL SPECIFICATIONS

<b>TYPE:</b>	Moving Doppler Radar Speed Sensor
<b>OPERATING FREQUENCY:</b>	34.7 GHz (Ka-band)
<b>STABILITY:</b>	±100 MHz
<b>POWER REQUIREMENTS:</b>	<b>Voltage:</b> 9 - 16 VDC <b>Current</b> (at 12 VDC nominal) Transmitter on: 370 mA Transmitter off: 100 mA
<b>ENVIRONMENTAL:</b>	<b>Operating:</b> -30°C to +70°C, 90% relative humidity <b>Non-operating:</b> -40°C to +85°C
<b>MECHANICAL:</b>	<b>Weight</b> – 1.15 lb. (0.52 kg) <b>Diameter</b> – 2.6 in. (6.7 cm) <b>Length</b> – 4.7 in. (11.8 cm) <b>Case Material</b> – Aluminum die cast
<b>ACCURACY:</b>	+/- 0.3% – Speeds are rounded down to the nearest unit or tenths of a unit depending on the unit resolution setting.
<b>AUTO SELF-TEST:</b>	Performed every 10 minutes while transmitting
<b>GROUND SPEED RANGE:</b>	Low ground speed acquisition threshold configurable: Standard acquisition of 20 to 90 MPH (32 to 144 KPH), when Ground Speed Lo Cutoff = High Optional acquisition of <1 to 90 MPH (<1.6 to 144 KPH), when Ground Speed Lo Cutoff = Low  Ground speed, once locked, will track to 199 MPH (320 KPH)

## MICROWAVE SPECIFICATIONS

<b>ANTENNA:</b>	Conical horn
<b>POLARIZATION:</b>	Circular
<b>3DB BEAMWIDTH:</b>	12° ±1°
<b>RF SOURCE:</b>	Gunn-Effect diode
<b>RECEIVER TYPE:</b>	Two Direct Conversion Homodyne receivers using four low-noise Schottky barrier mixer diodes
<b>POWER OUTPUT:</b>	10 mW minimum 15 mW nominal 25 mW maximum
<b>POWER DENSITY:</b>	1 mW/cm <sup>2</sup> maximum at 5 cm from lens

## FACTORY CONFIGURATION (defaults in bold)

<b>UNITS:</b>	<b>MPH</b> (miles-per-hour) or <b>KPH</b> (kilometers-per-hour)
<b>UNIT RESOLUTION:</b>	Speeds may be reported in whole numbers ( <b>Units</b> ) or Tenths
<b>MIN AGC GAIN:</b> <b>MAX AGC GAIN:</b>	8 levels each: 0 (min) to 7 (max); Normally <b>Min=0</b> and <b>Max=7</b> – setting these differently reduces the dynamic range of the speed sensor.
<b>SERIAL PORT BAUD RATE:</b>	The serial port operates at 8 data bits, no parity and 1 stop bit (8N1) with the following selectable baud rates: 300, 600, 1200, 2400, 4800, <b>9600</b> , 19200, 38400
<b>SERIAL PORT DATA FORMAT:</b>	None – no data output <b>'EF'</b> – <b>Enhanced Format</b> (continuous) <b>'EE'</b> – ground speed only (polled) <b>'B'</b> – all indicators output (continuous)
<b>COMMUNICATIONS PROTOCOL:</b>	<b>RS-485</b> or RS-232 (Available as two different models. Only polled format available on RS-485 model.)
<b>MESSAGE PERIOD:</b>	<b>N=0</b> (send speed report on each 45ms measurement interval); <b>N=1-2000</b> (send speed report on nearest 45 ms measurement interval following a delay of N milliseconds)
<b>AUTO-TEST PERIOD:</b>	Automatic test runs every 30-900 seconds. Default is <b>840 seconds</b> (14 minutes).
<b>AUTO-TEST MODE:</b>	Automatic test runs <b>always</b> or only when the radar transmitter is on.

## OPERATOR ACTIONS (defaults in bold)

<b>TRANSMIT/ HOLD:</b>	Turns the microwave transmitter <b>On</b> or Off
<b>SENSITIVITY:</b>	23 levels of sensitivity may be selected
<b>GROUND SPEED LO CUTOFF:</b>	The minimum acquisition speed for ground speed tracking may be set to either <1 MPH or <b>20 MPH</b> (1.6 or 32 KPH)
<b>PS BLANK:</b>	Momentarily clears the reported ground speed and causes ground speed to be re-acquired
<b>TEST MODE:</b>	Initiates a speed sensor self-test followed by a 60 second tuning fork mode, during which time directionality screening is disabled and the speed sensor will respond to any target direction (away or closing) or to non-directional targets (like tuning forks)
<b>FORK MODE:</b>	Disables direction sensing so that directionality screening is disabled and the speed sensor will respond to any signal (away or closing) or to non-directional targets (like tuning forks)