

# STALKER® Radar Traffic Speed Sensor

## GENERAL SPECIFICATIONS

<b>TYPE:</b>	Moving/Stationary 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>	+1, -2 MPH stationary, +2, -3 MPH moving +1, -2 KPH stationary, +2, -3 KPH moving
<b>AUDIO OUTPUT:</b>	A 5Vpp pulse-width modulated (PWM) audio output signal is provided – must be filtered and amplified for best audio quality.
<b>AUTO SELF-TEST:</b>	Performed every 10 minutes while transmitting
<b>STATIONARY SPEED RANGE:</b>	Stationary low speed threshold configurable: 5 MPH to 200 MPH (8 to 321 KPH) 12 MPH to 200 MPH (19 to 321 KPH)
<b>MOVING SPEED RANGE:</b>	<b>Patrol speed</b> – Low patrol acquisition threshold configurable: <i>Standard</i> acquisition of 20 to 90 MPH (32 to 144 KPH), when Patrol Lo Cutoff = 20 MPH <i>Optional</i> acquisition of 5 to 90 MPH (8 to 144 KPH), when Patrol Lo Cutoff = 5 MPH  Patrol speed, once acquired, will track to 199 MPH (320 KPH) <b>Opposite lane target speed</b> - 200 MPH Max closing (321 KPH) For 5 MPH (8 KPH) patrol speed: 20 MPH to 195 MPH (32 to 313 KPH) For 70 MPH (112 KPH) patrol speed: 35 MPH to 130 MPH (56 to 209 KPH) <b>Same lane target speed</b> – Related to patrol speed: ±70% of patrol speed within 5 MPH (8 KPH) of patrol speed i.e. For 50 MPH: 16→45 MPH and 55→85 MPH (For 80 KPH: 25→72 KPH and 88→136 KPH) Same lane patrol speed must be greater than 16 MPH (25 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>FINE SENSITIVITY ADJUST:</b>	4 levels of Maximum Sensitivity (0/1/2/3) (generally set at factory to compensate for microwave variations)
<b>STA LO CUTOFF:</b>	Minimum stationary mode low cutoff speed may be set to 5 MPH (8 KPH) or <b>12 MPH</b> (19 KPH)
<b>AUX PIN CONFIGURATION:</b>	The Aux pin can be configured to be <b>Doppler Audio</b> , disabled, or Speed Alarm.
<b>ALARM SPEED THRESHOLD:</b>	0-200 MPH (0-321 KPH)
<b>FASTER TARGET TRACKING:</b>	Faster target tracking can be <b>Enabled</b> or Disabled
<b>FAST LOCK ENABLE:</b>	Faster speed locking can be <b>Enabled</b> or Disabled

<b>LOCK OPTIONS:</b>	Off (no locking), <b>USA</b> (a Lock command will lock the strongest/fastest speed and the patrol speed, if in moving mode), Florida (a Lock command will only lock the target speed, but the patrol speed will not be locked – all locked readings will be released after 15 minutes)
<b>DOUBLE SUPPRESSION:</b>	6 levels of double suppression are provided (0/1/2/3/4/5); Increasing the value sets a higher qualification threshold for opposite lane targets traveling at or near the patrol speed
<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>LEADING ZERO CHARACTER:</b>	<b>Space</b> (ASCII 20 hex) or “0” (ASCII 30 hex) for ASCII formats (A, AF, B, S)
<b>PERCEIVED DOPPLER LOUDNESS:</b>	The perceived loudness may be set to <b>ALo</b> (Doppler Audio level varies with target signal strength), or <b>AHI</b> (Doppler Audio level is constant)
<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 ‘EE’ – Patrol Speed only (polled) ‘EF’ – <b>Enhanced Format</b> (continuous) ‘A’ – Strongest Target only (continuous) ‘AF’ – Fastest Target only (continuous) ‘B’ – all indicators output (continuous) ‘S’ – Sports compatibility format (continuous)
<b>COMMUNICATIONS PROTOCOL:</b>	<b>RS-232</b>
<b>MESSAGE PERIOD:</b>	N=0 (send speed report on each 45ms measurement interval); N=1-2000 (send speed report on nearest 45ms 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>RADAR MODE:</b>	<b>Moving</b> or Stationary
<b>RADAR ZONE:</b>	Away, Closing or Both (away and closing) for stationary mode; Same Lane and <b>Opposite</b> Lane for moving mode
<b>STA/OPP SENSITIVITY:</b>	4 levels of Stationary/Opposite Lane user sensitivity may be selected (0/1/2/3/4)
<b>SAME LANE SENSITIVITY:</b>	4 levels of Same Lane user sensitivity may be selected (0/1/2/3/4)
<b>STRONG LOCK:</b>	This command causes the strongest target speed to be “locked” and reported as the locked speed in selected output formats (EF, B)
<b>FAST LOCK:</b>	This command causes the faster target speed to be “locked” and reported as the locked speed in selected output formats (EF, B)
<b>PATROL LO CUTOFF:</b>	The minimum acquisition speed for patrol speed tracking may be set to either 5 MPH or <b>20 MPH</b> (8 or 32 KPH)
<b>PS BLANK:</b>	Causes a locked patrol speed to be cleared; also, momentarily clears the reported patrol speed and causes patrol speed to be re-acquired (moving mode only)
<b>SQUELCH:</b>	Doppler audio squelch can be <b>Enabled</b> or Disabled
<b>BEEP AUDIO LEVEL:</b>	4 beep levels are provided: 0 (off)/1/2/3 (loudest)
<b>DOPPLER AUDIO LEVEL:</b>	5 Doppler audio levels are provided: 0 (off, if allowed)/1/2/3/4 (loudest)
<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 target direction (away or closing) or to non-directional targets (like tuning forks)