

High Performance Sensors for OEM Applications

Stalker Radar has distilled its speed measurement and detection expertise into its Traffic Technologies suite of Speed Measurement, Transportation, Sports, and Surface Velocity sensors. Stalker Radar precision is now available to engineers worldwide to address virtually any speed measurement application.

- Stationary Speed Sensor II
- Stationary Speed Sensor II - Open Board
- Traffic Statistics Sensor
- Traffic Statistics Application
- 6° x 26° Stationary and Traffic Statistics Sensors
- Speed CCTV Sensor
- Traffic Speed Sensor
- Stationary Speed Sensor
- Speedometer Sensor
- Surface Velocity Sensor
- Pro II Speed Sensor



STALKER[®]

Power to Enforce.

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006-0561-00 Rev D

800-STALKER

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Traffic Technologies

StalkerRadar.com

Developer Kit(s)	I/O Cable	Connector(s)	User Manual	Software	
200-0863-00 RS-232 200-0864-00 RS-485	155-2223-00 RS-232 155-2239-02 RS-485		011-0116-00	Scoreboard App 200-0865-00	
200-0702-00 RS-232	155-2223-00		011-0110-00	Dashboard 200-0707-00	
200-0702-00 RS-232 200-0730-00 RS-485	155-2223-00 RS-232 155-2239-02 RS-485		011-0110-00	Dashboard 200-0707-00	
200-0702-00 RS-232 200-0730-00 RS-485	155-2223-00 RS-232 155-2239-02 RS-485		011-0110-00	Dashboard 200-0707-00	
N/A	155-2223-00 RS-232 155-2239-02 RS-485		011-0110-00	N/A	

** Packages with Developer Kits: Packages with Developer Kits consist of sensor, Developer Kit (see page 15 for more information), tuning fork, dash mount, manual(s), and Certificate of Accuracy.

Sensor	Part number	Description	Range	Package(s)
Stalker Pro II Speed Sensor	200-0853-00 RS-232 200-0854-00 RS-485	Ka-Band - Scoreboards, Tennis facilities. Directional - tracks a wide variety of objects including baseballs, vehicles, tennis balls, and hockey pucks. PC application available for configuration.	1.75 mi. 2.81 km	818-1001-00 RS-232 with Developer Kit** 818-1002-00 RS-485 with Developer Kit**
Stalker Traffic Speed Sensor	200-0644-00	Ka-Band - For speed sensing application requiring the monitoring of target speed in a mobile environment. Direction sensing, with both moving and stationary capabilities.	1.75 mi. 2.81 km	818-2410-00 RS-232 Base* 818-2411-00 RS-232 with Developer Kit**
Stalker Stationary Speed Sensor	200-0644-01 RS-232 200-0679-01 RS-485 200-0644-50 RS-232 (right angle connector)	Ka-Band - For measuring speed from a fixed position - speed warning signs, traffic studies, rail crossing safety, rail yard operations.	1.75 mi. 2.81 km	818-0003-00 RS-232 Base* 818-0005-00 RS-485 Base* 818-0001-00 RS-232 with Developer Kit** 818-0000-00 RS-485 with Developer Kit**
Stalker Speedometer Sensor	200-0644-02 RS-232 200-0679-00 RS-485	Ka-Band - Direction sensing (forward/reverse). Senses ground speed of the object. Use for locomotive speedometer, agricultural applications, warehouse safety, ship docking operations.	1.75 mi. 2.81 km	818-2449-00 RS-232 Base* 818-2452-00 RS-485 Base* 818-2450-00 RS-232 with Developer Kit** 818-2451-00 RS-485 with Developer Kit**
Stalker Surface Velocity Sensor	200-0814-00 RS-232 200-0914-00 RS-485	Ka-Band - Tilt compensation and DSP, combined with direction sensitivity, horizontal angle adjustment, and 4 levels of sensitivity for all water flow measurement applications.	1.75 mi. 2.81 km	818-0007-00 RS-232 Base* 818-0008-00 RS-485 Base* 818-0004-00 RS-232 with Developer Kit** 818-0006-00 RS-485 with Developer Kit**

* **Base Packages:** Base packages consist of a sensor, unterminated cable, software, manual, and Certificate of Accuracy.

K-Band Sensors

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- Speed CCTV Sensor 7
- K-Band Sensor Grid 8 - 9

Ka-Band Sensors

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- Traffic Speed Sensor 11
- Speedometer Speed Sensor 12
- Surface Velocity Sensor 13
- Pro II Speed Sensor 14
- Ka-Band Sensor Grid 16 - 17

- Developer Kits 15

Engineering Support and Development

Largest engineering team dedicated to development and refinement of radar products.

Stalker sensors are engineered and manufactured to exacting standards and designed to fit seamlessly into a variety of OEM systems and processes. However, some applications require a unique set of characteristics and settings.

Our Engineering team partners with OEM engineers and developers to create custom hardware and software solutions to help achieve their goals.

We bring years of speed measurement and detection expertise to the table and make our knowledge available to address virtually any speed measurement application.

Should your particular speed measurement, transportation, traffic, sports, or surface velocity application have specific requirements, contact our Engineering Department.

- Our commitment to product advancement has resulted in the largest patent portfolio of law enforcement radar technology in the industry.
- We rely on our own resident microwave experts which have produced the highest performance microwave radar assemblies available to the OEM.
- Following product development, our staff is dedicated to continuous improvement of its products. Existing products undergo constant evaluation and refinement to improve product quality, performance, and features.

Stalker Stationary Speed Sensor II

Stalker's new Stationary Speed Sensor II is the key component in any OEM speed measurement application.

FEATURES
■ mph, km/h, knots, m/s, ft/s
■ RS-232, RS-485, USB
■ 11 streaming, 3 polled protocols
■ IP67 rated
■ Low power consumption < 1 watt
■ 1-Year parts and labor warranty

Low power consumption, small size, and competitive price all make Stalker's new Stationary Speed Sensor II the right choice for nearly any speed measurement application.

The Stalker Stationary Speed Sensor II utilizes digital signal processing that enables it to track vehicles either moving toward it, vehicles moving away, or both directions simultaneously.



Performance

Range	>1300 feet (400 m)
Minimum Speed	1 mph (1.6 km/h)
Maximum speed	200 mph (321.9 km/h)
Speed Resolution	0.1 mph (.16km/h)
Speed Accuracy	±0.5 mph ±0.3% ±0.8 km/h ±0.3%

Directionality selections - Approaching, Receding, Both

Communications Ports

- 4 communications types
 - RS-485 full duplex
 - RS-485 half duplex
 - RS-232, no flow control
 - USB
- Multiple ports available simultaneously depending on model ordered
- Baud rates – 9.6K to 921.6K baud
- 11 streaming protocols
- 3 polled protocols
- Any output protocol on any port
- Sensors are addressable with multi-drop capabilities

Trigger Output

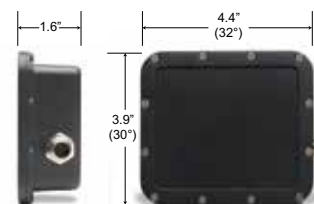
- Electrically isolated trigger contacts
- Two normally open (NO) contacts
- 60 volt max
- 400 mA max

Environmental

Operating temp.	-22° F (-30° C) to +158° F (+70° C)
Storage temp.	-40° F (-40° C) to +185° F (+85° C)
Ingress rating	IP67

Physical characteristics

Size (LxWxD) excluding connector	4.4 x 3.9 x 1.6 inches (11.2 x 9.9 x 4 cm)
Weight	<13 oz. (.35 kg)
Housing	Die-cast aluminum
Lens	HDPE
Electrical connector	M12, 12 pin
Mounting	4 x 10-32 UNF



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Microwave

Center frequency	24.125 GHz
Frequency range	100 MHz
Transmit power	100 mW
Beam width	30° by 32°
F.C.C. Approved. No license required.	

Power

Voltage	10 to 45 volts, DC
Current (24 volts DC)	80 mA @ 12 VDC typical
Power	<1 watt

Protections

- Transient protection
- Reverse voltage protection
- Resettable Fuse

Part Number	Description	
200-0880-00	Side Port RS-232 and RS-485	
200-0880-52	Rear Port RS-232, RS-485 and USB	
200-0880-55	Side Port USB only	

See center spread for Packages, Developer Kits, Cables, Connectors, Manuals, and Software.

Developer Kits

Stalker Sensor Developer Kits

Sensor Developer Kits are designed to perform a broad array of tasks in a number of configurations. Some systems use the sensors with the Stalker Sensor Wizard Application in RS-232 or RS-485, while other sensors are connected directly to their own proprietary systems, also in RS-232 or RS-485 interface.

The kits themselves contain parts which may or may not pertain to your specific application, but can be ordered separately. For example, in some cases, once the sensor is configured, the Programming Box is no longer necessary. And, the Programming Box can be used over and over to configure, test, and reset sensors.

Overall, the purpose of the Stalker Developer Kit:

- Configure or test the sensor
- Interface with Stalker Sensor Wizard Application
- In the case of setup issues, reset the sensor to product defaults

RS-232 Developer Kit (200-0702-00 & 200-0863-00)

The Stalker RS-232 Developer Kit contains the following:

- RS-232 Programming Box (200-0702-01)
- Power and I/O Cable (12') (155-2223-00)
- Application CD (with Config files)
- Serial cable (10') (155-2130-00)
- USB-to-Serial Port (DB9) Adapter (015-0196-00)



RS-485 Developer Kit (200-0730-00 & 200-0864-00)

The Stalker RS-485 Developer Kit contains the following:

- RS-485 Programming Box (200-0730-01)
- Power and I/O Cable (82') (155-2239-02)
- Application CD (with Config files)
- Serial cable (10') (155-2130-00)
- USB-to-Serial (DB9) Port Adapter (015-0196-00)



200-0702-00 (RS-232)



(Sensors not included in Developer Kits)

200-0730-00 (RS-485)

Combined Data/Power Developer Kit (200-1026-00)

The Developer Kit contains the following:

- Power/serial data adaptor (155-2360-01)
- Switching Power Supply with US/Euro plug sets (200-1021-00)
- Application CD with Config files (200-0972-00)
- USB-to-Serial (DB9) Port Adapter (015-0196-00)
- Serial cable (10') (155-2130-00)
- Sensor Mount and Pole Clamp



200-1026-00

Combined Data/Power Statistics Developer Kit (200-1026-20)

The Developer Kit contains the following:

- Power/serial data adaptor (155-2360-01)
- Switching Power Supply with US/Euro plug sets (200-1021-00)
- Application CD with Config files (200-0972-00)
- USB-to-Serial (DB9) Port Adapter (015-0196-00)
- Serial cable (10') (155-2130-00)
- Sensor Mount and Pole Clamp
- Statistics Application CD (200-0973-00)

Stalker Sensor Wizard Application

The new Stalker Sensor Wizard application, included with all new sensors, allows for easy configuration, testing, and troubleshooting. In addition, multiple sensors may be configured using saved settings for quick and easy duplication.



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Pro II Speed Sensor

Powerful, Feature-loaded Sports Speed Measurement Radar

FEATURES	
■ MPH, km/h, knots, m/s, ft/s	
■ RS-232, RS-485	
■ 11 streaming, 3 polled protocols	
■ IP67 rated	
■ Low power consumption < 1 watt	
■ 1-Year parts and labor warranty	

The Pro II Speed Sensor is a complete and highly-accurate Doppler Radar in a small, rugged waterproof housing that can measure the speed of a wide variety of objects including baseballs, vehicles, tennis balls, and hockey pucks. It combines features and performance of the Stalker Pro II handheld sport gun with the Sport Speed Sensor configuration. The unit is available in an RS-232 model and an RS-485 model and includes complete software support.



The Speed Sensor II utilizes digital signal processing that enables it to track vehicles either moving toward it, vehicles moving away, or both directions simultaneously.

General Specifications

Product Type	Stationary Doppler Radar Speed Sensor
Processor	Digital Signal Processor
Operating Temperatures	-30°C to +70°C (-22°F to +158°F), 90% relative humidity
Storage Temperatures	-40°C to +85°C (-40°F to +185°F)

Microwave Specifications

Operating Frequency	34.7 GHz (Ka-band)
Frequency Stability	±100 MHz
Antenna Type	Conical Horn
Polarization	Circular
3 db Beam Width	12°±1°
Microwave Source	Gunn-Effect Diode
Receiver Type	Two direct-conversion homodyne receivers using four low-noise Schottky barrier mixer diodes
Power Output	10 mW minimum 15 mW nominal 25 mW maximum
Power Density	1 mW/cm ² maximum at 5 cm from lens

The Federal Communications Commission requires that all transmitting equipment carry a Grant of Type Acceptance. The Stalker Speed Sensors comply with Part 90 of the FCC rules and are Type Accepted by the FCC under Type Acceptance number IBQACMI002. The FCC also requires that an operating license be obtained by the user of the equipment.

Electrical Specifications

Supply Voltage	9 – 24 VDC
Current (at 12 VDC nominal)	Transmitter On: 390 mA Transmitter Off: 138 mA

Performance Specifications

Speed Range	Max target speed: 800+ MPH Min target speed: < 1 MPH
Accuracy	+/- 0.3% In ones resolution, speeds are rounded to nearest integer. In tenths resolution, speeds are rounded to nearest tenth.
Maximum Clocking Distance	500 Feet for baseballs 1 ¼ Miles for an average auto
Audio Output	Raw 3.3 V analog audio output signal is provided for Doppler audio – must be filtered and amplified for best audio quality.
Speed Alarm Output	With speeds below the Alarm Threshold, the Aux pin output is 0.0V With speeds at or above the Alarm Threshold, the Aux pin is 3.3V with a 1k ohm source impedance.

Physical Specifications

Weight	1.15 lb (0.52 kg)
Diameter	2.6 in (6.7 cm)
Length	4.7 in (11.8 cm)
Case Material	Aluminum die cast

See pages 16 - 17 for Packages, Developer Kits, Cables, Connectors, Manuals, and Software.

Stalker Stationary Open Board Speed Sensor

Stalker's new open board Stationary Speed Sensor II provides greater flexibility to any OEM speed measurement application.

FEATURES	
■ mph, km/h, knots, m/s, ft/s	
■ RS-232, RS-485	
■ 11 streaming, 3 polled protocols	
■ Low power consumption < 1 watt	
■ 1-Year parts and labor warranty	



Performance

Range	>1300 feet (400 m)
Minimum Speed	1 mph (1.6 km/h)
Maximum speed	200 mph (321.9 km/h)
Speed Resolution	0.1 mph (.16km/h)
Speed Accuracy	±0.5 mph ±0.3% ±0.8 km/h ±0.3%

Directionality selections - Approaching, Receding, Both

Communications Ports

- 4 communications types
 - RS-485 full duplex
 - RS-485 half duplex
 - RS-232, no flow control
- Up to Three simultaneous ports,
 - One RS-485 FD and one RS-232 port available simultaneously
 - Two RS-485 HD and one RS-232 port available simultaneously
- Baud rates – 9.6K to 921.6K baud
- 11 streaming protocols
- 3 polled protocols
- Any output protocol on any port
- Sensor are addressable with multi-drop capabilities

Trigger Output

- Electrically isolated trigger contacts
- Two normally open (NO) contacts
- 60 volt max
- 400 mA max

Environmental

Operating temp.	-22° F (-30° C) to +158° F (+70° C)
Storage temp.	-40° F (-40° C) to +185° F (+85° C)

Physical characteristics

Size (LxWxD) excluding connector	3.32 x 2.76 x 1.1 inches (8.43 x 7.01 x 2.79 cm)
Weight	3.2 oz. (.09 kg)
Mounting	Mounting holes for flexible OEM mounting

Microwave


Center frequency	24.125 GHz
Frequency range	100 MHz
Transmit power	100 mW
Beam width	30° by 32°

Power

Voltage	10 to 45 volts, DC
Current (24 volts DC)	80 mA @ 12 VDC typical
Power	<1 watt

Protections

- Transient protection
- Reverse voltage protection
- Resettable Fuse

Part Number	Description	
200-1004-00	K-Band Sensor without enclosure	

See center spread for Packages, Developer Kits, Cables, Connectors, Manuals, and Software.

Stalker Traffic Statistics Sensor

Stalker's Traffic Statistics Sensor delivers high performance with low power requirements for pole mount or speed/message trailer application.



FEATURES
Low power consumption < 1 watt
Collects traffic volume, speeds, direction and classification over time
Internal data memory - autonomous
Collects data in four different modes
Tracks up to 10 moving vehicles simultaneously
Waterproof and weatherproof
Streaming raw data output
Works with Stalker Traffic Statistics App for data analysis and presentation

The Stalker Traffic Statistics Sensor is a self-contained system to monitor and internally record traffic patterns on roadways in virtually any location and weather condition.

In addition to its statistical capabilities, the unit can track up to 10 moving vehicles simultaneously and operate as an ordinary speed sensor feeding strongest and fastest target information to external systems through a RS-232, RS-485, USB communications, or USB flash drive interface.

Designed for use with the Stalker Traffic Statistics Application.

Microwave

Center frequency	24.125 GHz
Frequency range	100 MHz
Transmit power	100 mW
Beam width	30° by 32°
F.C.C. Approved	No license required.

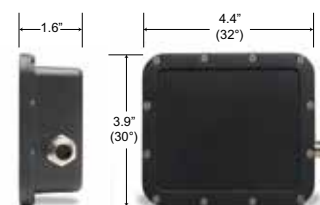
Power

Voltage	10 to 45 volts, DC
Current	80 mA @ 12 VDC typical
Power	<1 watt
Protections	<ul style="list-style-type: none"> Transient protection Reverse voltage protection Resettable Fuse

Environmental

Operating temp.	-22° F (-30° C) to +158° F (+70° C)
Storage temp.	-40° F (-40° C) to +185° F (+85° C)
Ingress rating	IP67

Part Number	Description	
200-0880-01	Side Port RS-232 and RS-485	
200-0880-53	Rear Port RS-232, RS-485 and USB	
200-0880-54	Side Port USB only	
200-0880-56	USB Flash Drive port only	



See center spread for Packages, Developer Kits, Cables, Connectors, Manuals, and Software.

Performance

Range	>1300 feet (400 m)
Minimum Speed	1 mph (1.6 km/h)
Maximum speed	200 mph (321.9 km/h)
Speed Resolution	0.1 mph (.16km/h)
Speed Accuracy	±0.5 mph ±0.3% ±0.8 km/h ±0.3%
Directionality selections	Approaching, Receding, Both

Communications Ports

- 4 communications types
 - RS-485 full duplex
 - RS-485 half duplex
 - RS-232, no flow control
 - USB
- Multiple ports available simultaneously depending on model ordered
- Baud rates – 9.6K to 921.6K baud
- 11 streaming protocols
- 3 polled protocols
- Any output protocol on any port
- Sensors are addressable with multi-drop capabilities

Physical characteristics

Size (LxWxD) excluding connector	4.4 x 3.9 x 1.6 inches (11.2 x 9.9 x 4 cm)
Weight	<13 oz. (.35 kg)
Housing	Die-cast aluminum
Lens	HDPE
Electrical connector	M12, 12 pin
Mounting	4 x 10-32 UNF

Trigger Output

- Electrically isolated trigger contacts
- Two normally open (NO) contacts
- 60 volt max
- 400 mA max

Stalker Surface Velocity Sensor

Stalker's Surface Velocity Sensor sets a new standard in OEM waterflow management.



FEATURES
User adjustable tilt compensation adjusts speed reading based on angle to target.
Measures: meters/second, feet/second, miles per hour, and kilometers per hour.
Digital Signal Processing.
Senses flow direction - moving away, closing, or both directions.
4 levels of sensitivity.

The Speed Sensor SVR features a rugged cast-metal exterior and the world's most sensitive transmitter/receiver as well as miniaturized and modernized electronics. Its direction sensing software and updated algorithms position the Speed Sensor SVR as a new-generation radar ideal for the task of accurate and reliable water flow measurement. Moreover, the Speed Sensor SVR's Ka- Band performance measuring water flow is superior to the K Band used by some of its competitors' radars.

To make it better suited for measuring from elevated perspectives, the Speed Sensor SVR can be easily adjusted by the end user to compensate its speed reading based on the angle that the radar points at the target flow.

The Speed Sensor SVR has a speed range of 0.2 m/s to 18.0 m/s – from below 1 mph to over 40 mph – with an accuracy of ±0.1 m/s. And it measures in meters/second, feet/second, miles per hour, and kilometers per hour.

General Specifications

Type:	Surface Velocity Radar Sensor
Operating Frequency:	34.7 GHz (Ka-Band)
Stability:	±100 MHz
Power Requirements:	Voltage: 9 - 24 VDC Current: (at 12 VDC nominal) Transmitter on: 470 mA Transmitter off: 100 mA
Environmental	Operating: -22° F (-30° C) to +158° F (+70° C), 90% relative humidity, Non-operating: -40° F (-40° C) to +185° F (+85° C)
Mechanical:	Weight – 1.15 lb. (0.52 kg) Diameter – 2.6 in. (6.7 cm) Length – 4.7 in. (11.8 cm) Case Material – Aluminum die cast
Accuracy:	± 0.1 m/s
Auto Self-Test:	Performed every 10 minutes while transmitting
Speed Range:	0.2 m/s to 18 m/s

Microwave Specifications

Antenna:	Conical horn
Polarization:	Circular
3DB Beamwidth:	12° ±1°
RF Source:	Gunn-Effect diode
Receiver Type:	Two direct-conversion homodyne receivers using four low-noise Schottky barrier mixer diodes
Power Output:	20 mW minimum 25 mW nominal 50 mW maximum
Power Density:	2 mW/cm2 maximum at 5 cm from lens

Factory Configuration (defaults in Bold)

Serial Port Baud Rate	9600
Communications Protocol	RS-232 or RS-485 - build option

Field Configuration (defaults in Bold)

Units:	ft/s (feet/sec), m/s (meters/sec), mph (miles/hour), or km/h (kilometers/hour)
Radar Zone:	Away, Closing or Auto directional sensitivity may be selected
Serial Port Data Format	Current Speed only or longer messages with speed, strength, and averages.
Horizontal Angle	From 0° to 70°
Vertical Angle	From 0° to 70°
Sensitivity	4 levels of field sensitivity may be selected (1/2/3/4 max)

See pages 16 - 17 for Packages, Developer Kits, Cables, Connectors, Manuals, and Software.

Stalker Speedometer Speed Sensor

Stalker's Speedometer Speed Sensor features high accuracy and direction sensing capabilities for numerous applications.



FEATURES	
■	Senses ground speed of object-mounted speed sensor (e.g. vehicle)
■	Direction sensing (forward/reverse)
■	Adjustable ground speed sensitivity
■	Adjustable automatic gain control (AGC) range
■	Speed units selectable: mph, km/h, nautical miles/hr (knots), feet/sec, meters/sec
■	Unit or tenths resolution selection
■	RS-232 or RS-485 serial interface supporting baud rates up to 38400
■	Selectable output protocols and data formats

If the application is in motion, the Speedometer Speed Sensor fits the assignment. Think of it as a Radar Speedometer and more. For example, since it's direction sensing it can measure speed in both directions. Use it anywhere the object that it's mounted on is in motion.

Stalker Speedometer Speed Sensor application:

- Locomotive speedometer and other train or railroad applications
- Agricultural applications
- Warehouse safety
- Ship docking operations

General Specifications

Type:	Moving Doppler Speed Sensor
Operating Frequency:	34.7 GHz (Ka-Band)
Stability:	±100 MHz
Communication Preference:	RS-232 or RS-485 available as separate models
Power Requirements:	Voltage: 9 - 16 VDC for SN ST6560 and below 9 - 24 VDC for SN ST6561 and above Current: (at 12 VDC nominal) Transmitter on: 370 mA Transmitter off: 100 mA
Environmental	Operating: -22° F (-30° C) to +158° F (+70° C), 90% relative humidity, Non-operating: -40° F (-40° C) to +185° F (+85° C)
Mechanical:	Weight – 1.15 lb. (0.52 kg) Diameter – 2.6 in. (6.7 cm) Length – 4.7 in. (11.8 cm) Case Material – Aluminum die cast
Accuracy:	+/- 0.3% - Speeds are rounded down to the nearest unit or tenths of a unit depending on the unit resolution setting
Auto Self-Test:	Performed every 10 minutes while transmitting
Ground Speed Range:	Low ground speed acquisition threshold configurable: Standard acquisition of <1 to 90 mph (<1.6 to 144 km/h), when Ground Speed Lo Cutoff = Low Optional acquisition of 20 to 90 mph (32 to 144 km/h), when Ground Speed Lo Cutoff = High Ground speed, once acquired, will track to 199 mph (320 km/h)

Microwave Specifications

Antenna:	Conical horn
Polarization:	Circular
3DB Beamwidth:	12° ±1°
RF Source:	Gunn-Effect diode
Receiver Type:	Two direct-conversion homodyne receivers using four low-noise Schottky barrier mixer diodes
Power Output:	10 mW minimum 15 mW nominal 25 mW maximum
Power Density:	1 mW/cm ² maximum at 5 cm from lens

Control and Configuration Settings

Basic Configuration	Transmitter Control Unit of Measure Unit Resolution
Serial Port Configuration:	Baud Rate Output Format Leading Zero Character Message Period
Target Recognition:	Ground Speed Sensitivity Patrol Speed Blank
Target Filtering:	Patrol Speed Low Cutoff Max AGC Gain Min AGC Gain Current AGC Gain
Testing:	Fork Enable Test
System:	Get Product ID

See pages 16 - 17 for Packages, Developer Kits, Cables, Connectors, Manuals, and Software.

Stalker Traffic Statistics Application

Easy to use, full-featured traffic statistics analysis.

FEATURES	
■	Powerful Setup and Configuration
■	Provide Statistics by time period
■	Average Speed
■	85th Percentile
■	10 mph (km/h) pace
■	Max/Min Speeds
■	Over/under limit counts
■	Full color graphical or tabular display
■	Revenue projections

Stalker Traffic Statistics App is a comprehensive, full-featured traffic statistics collection and analysis tool designed for law enforcement officers, traffic engineers, city maintenance departments, and other government safety personnel.

The application controls radar sensor setup, survey data extraction, survey data analysis, and report creation, while working seamlessly with the Stalker Traffic Statistics Sensor.

The Traffic Statistics Sensor collects and stores raw data in embedded non-volatile memory until accessed by the application.



Vehicle Speed vs. Time

Analyze Collected Data

Once collected, data can be analyzed against numerous metrics and summary statistics for multiple periods, presented in a variety of ways:

- Average speed
- 85th percentile
- 10 mph (km/h) pace
- Max/min speeds
- Over/under limit count

Create Color-coded Graphical displays

- Speed Vs. Time
- Vehicle Count vs. Time
- Vehicle count vs. Speed

Determine revenue projections

- Set speed bin value amount
- Set speed bin ticketing probability

Display using various filters

- View only desired direction
- View only desired vehicle classification

Easy setup and configuration

The Stalker Traffic Statistics App uses a single menu screen to set up survey parameters, measurement units, and data resolution. The application automatically detects the sensor's serial port connection and baud rate.

The Survey Setup Screen allows the user to define and identify various elements of the survey, such as name, Operator ID, survey address, zone, traffic direction, Speed in mph, km/s, knots, meters/sec, or feet/sec, and much more.

Survey Calendar Setup

The Survey calendar is controlled through a simple-to-use but powerful interface.

Survey mode timing such as Always On, Continuous Period - Single period for survey, Daily Schedule - Every day at the same time, Selected Days - Specific days

Output/Display Analysis Data

Output in both graphical and tabular data in multiple chart types

- 3-D Chart
- Line
- Column
- Stacked Column
- Area

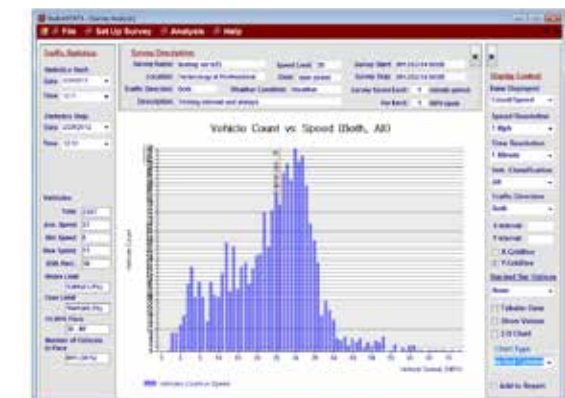
Send to printer or PDF file or export data to Excel compatible text file



Tabular Data Results

Revenue Controls

- Estimates approximate revenue based on speed counts over the defined speed limit.



Vehicle Count vs. Speed

6° x 26° Stalker Stationary Speed Sensor II

6° x 26° Stalker Traffic Statistics Sensor

Narrow horizontal beam sensor ideal for lane discrimination.

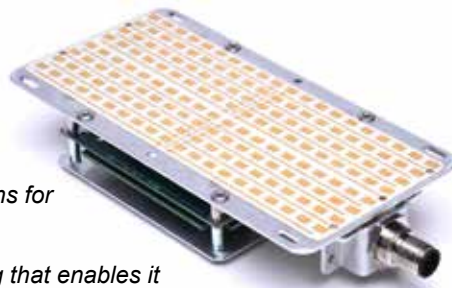
FEATURES
■ MPH, km/h, knots, m/s, ft/s
■ RS-232, RS-485, USB
■ 11 streaming, 3 polled protocols
■ Tracks up to 10 moving vehicles simultaneously
■ Narrow horizontal beam for single lane applications
■ 1-Year parts and labor warranty

A narrow 6° beam, adjustments for mounting angle, and competitive price all make Stalker's new OEM 6°x26° Stationary Speed Sensor II radar the right choice for lane discrimination applications.

Its open-frame design allows flexible mounting options for OEM developers integrating it into their systems.

The Speed Sensor II utilizes digital signal processing that enables it to track vehicles either moving toward it, away from it, or both directions simultaneously. Additionally, it has target recognition/filtering settings and a speed alarm output.

Including all the features of the OEM 6x26° Stationary Speed Sensor II, the OEM 6x26° Traffic Statistics Sensor adds the capability to store traffic volume, speeds, direction, and classification in the unit. The Stalker Traffic Statistics PC App is available to review, analyze, and present the traffic data.



12 position, 1.25 mm picoblade connector shown with protective cover plate removed

Performance

Range	>1300 feet (400 m)
Minimum Speed.....	1 mph(1.6 km/h)
Maximum speed	200 mph (321.9 km/h)
Speed Resolution	0.1 mph (.16km/h)
Speed Accuracy.....	±0.5 mph ±0.3%
	±0.8 km/h ±0.3%

Directionality selections Approaching, Receding, Both

Communications Ports

- 4 communications types
 - RS-485 full duplex (FD)
 - RS-485 half duplex (HD)
 - RS-232 with no flow control
 - USB
- Up to four simultaneous ports,
 - One RS-485 FD, one RS-232, and one USB port
 - Two RS-485 HD, one RS-232, and one USB port
- Baud rates – 9.6K to 460.8K baud
- 11 streaming protocols
- 3 polled protocols
- Any output protocol on any port
- Sensors are addressable with multi-drop capabilities

Speed Alarm Output

- One normally floating contact – pulled to ground for alarm state
- 60 volt max
- 400 mA max

Physical characteristics

Size (LxWxD) excluding connector...6.1 x 3.1 x 1.52 inches
(15.5 x 7.9 x 3.86 cm)

Weight< 8 oz. (.23 kg)

Mounting.....slots for flexible OEM mounting

Microwave

Center frequency.....	24.125 GHz
Frequency range	100 MHz
Transmit power.....	200 mW
Beam width.....	6° by 26°



Power

Voltage	10 to 45 volts, DC
Current	250mA @ 12 VDC typical
Power	<3 watt

- Protections
- Transient protection
 - Reverse voltage
 - Resettable Fuse

Environmental

Operating temp.....	-22° F (-30° C) to +185° F (+85° C)
Storage temp.....	-40° F (-40° C) to +185° F (+85° C)

Part Number	Description	
200-1033-00	Stationary Speed Sensor only	
200-1033-01	Traffic Statistics Sensor only	
200-1033-10	Stationary Speed Sensor with M12 connector	
200-1033-11	Traffic Statistics Sensor with M12 connector	

See center spread for Packages, Developer Kits, Cables, Connectors, Manuals, and Software.

Stalker Traffic Speed Sensor

Stalker's Traffic Speed Sensor when the application requires a radar with both moving, stationary, and direction-sensing capabilities.



FEATURES
■ Longest range available – up to 2 miles
■ Simultaneous closing/away operation available in stationary mode
■ Strongest and faster target detection in all modes
■ True Doppler audio output
■ Strongest and faster speed locking
■ RS-232 serial interface supporting baud rates up to 38400
■ Selectable output protocols and data formats

General Specifications

Type:	Moving/Stationary Doppler Radar Speed Sensor
Operating Frequency:	34.7 GHz (Ka-Band)
Stability:	±100 MHz
Communication:	RS-232
Power Requirements:	Voltage: 9 - 16 VDC for SN ST6560 and below 9 - 24 VDC for SN ST6561 and above Current: (at 12 VDC nominal) Transmitter on: 370 mA Transmitter off: 100 mA
Environmental	Operating:-22° F (-30° C) to +158° F (+70° C), 90% relative humidity, Non-operating:-40° F (-40° C) to +185° F (+85° C)
Mechanical:	Weight – 1.15 lb. (0.52 kg) Diameter – 2.6 in. (6.7 cm) Length – 4.7 in. (11.8 cm) Case Material – Aluminum die cast
Accuracy:	+1, -2 mph stationary, +2, -3 mph moving +1, -2 km/h stationary, +2, -3 km/h moving
Audio Output:	A 3.3Vpp pulse-width modulated (PWM) audio output signal is provided – must be filtered and amplified for best audio quality.
Auto Self-Test:	Performed every 10 minutes while transmitting
Stationary Speed Range:	Stationary low speed threshold configurable: 1 mph to 200 mph (8 to 321 km/h) 12 mph to 200 mph (19 to 321 km/h)
Moving Speed Range:	Patrol speed – Low patrol acquisition threshold configurable: <i>Standard</i> acquisition of 1 to 90 mph (8 to 144 km/h), when Patrol Lo Cutoff = Low Optional acquisition of 20 to 90 mph (32 to 144 km/h), when Patrol Lo Cutoff = High Patrol speed, once acquired, will track to 199 mph (320 km/h) Opposite lane target speed – 200 mph Max combined closing speed (321 km/h) For 5 mph (8 km/h) patrol speed: 20 mph to 195 mph (32 to 313 km/h) For 70 mph (112 km/h) patrol speed: 35 mph to 130 mph (56 to 209 km/h) Same lane target speed – Related to patrol speed: ±70% of patrol speed within 5 mph (8 km/h) of patrol speed i.e. For 50 mph: 16→45 mph and 55→85 mph (For 80 km/h: 25→72 km/h and 88→136 km/h) Same lane patrol speed must be greater than 16 mph (25 km/h).

Microwave Specifications

Antenna:	Conical horn
Polarization:	Circular
3DB Beamwidth:	12° ±1°
RF Source:	Gunn-Effect diode
Receiver Type:	Two direct-conversion homodyne receivers using four low-noise Schottky barrier mixer diodes
Power Output:	10 mW minimum 15 mW nominal 25 mW maximum
Power Density:	1 mW/cm2 maximum at 5 cm from lens

Control and Configuration Settings

Basic Configuration	Transmitter Control Mode Zone Unit of Measure Unit Resolution Faster Target Tracking AUX Pin Configuration
Serial Port Configuration:	Baud Rate Output Format Leading Zero Character Message Period
Target Recognition:	Opposite Lane/Stationary Sensitivity Same Lane Sensitivity Fine Sensitivity Adjust Patrol Speed Blank
Target Filtering:	Stationary Low Cutoff Patrol Speed Low Cutoff Double Suppression Max AGC Gain Min AGC Gain Current AGC Gain
Speed Presentation:	Holdover Delay
Locking Targets:	Lock Option Faster Locking Enable Strongest Lock Fast Lock Patrol Speed Blank
Speed Alarm:	Alarm Speed Threshold
Audio:	Doppler Audio Volume Aud 0 Enable Variable Doppler Loudness Squelch Beep Volume
Testing:	Fork Enable Auto Test Period Auto Test Mode Enhanced Test
System:	Get Product ID Get Product Type Get Software Version

See pages 16 - 17 for Packages, Developer Kits, Cables, Connectors, Manuals, and Software.

Stalker Stationary Speed Sensor

Stalker's Stationary Speed Sensor, for measuring speed from a fixed position, is the right choice.



FEATURES

- Stationary-only operation
- Direction sensing (closing or away, simultaneous closing/away)
- Longest range available – up to 2 miles
- Strongest and faster target detection in all modes
- Adjustable sensitivity
- RS-232 or RS-485 serial interface with baud rates up to 38400
- Selectable output protocols and data formats

General Specifications

Type:	Stationary Doppler Radar Speed Sensor
Operating Frequency:	34.7 GHz (Ka-Band)
Stability:	±100 MHz
Communication Preference:	RS-232 or RS-485 available as separate models
Power Requirements:	Voltage: 9 - 16 VDC for SN ST6560 and below 9 - 24 VDC for SN ST6561 and above Current: (at 12 VDC nominal) Transmitter on: 370 mA Transmitter off: 100 mA
Environmental	Operating: -22° F (-30° C) to +158° F (+70° C), 90% relative humidity, Non-operating: -40° F (-40° C) to +185° F (+85° C)
Mechanical:	Weight – 1.15 lb. (0.52 kg) Diameter – 2.6 in. (6.7 cm) Length – 4.7 in. (11.8 cm) Case Material – Aluminum die cast
Accuracy:	+/- 0.3% - Speeds are rounded down to the nearest unit or tenths of a unit depending on the unit resolution setting
Audio Output:	A 3.3Vpp pulse-width modulated (PWM) audio output signal is provided – must be filtered and amplified for best audio quality.
Auto Self-Test:	Performed every 10 minutes while transmitting
Stationary Speed Range:	Stationary low speed threshold configurable: 1 mph to 200 mph (1.6 to 321 km/h) 12 mph to 200 mph (19 to 321 km/h)

Microwave Specifications

Antenna:	Conical horn
Polarization:	Circular
3DB Beamwidth:	12° ±1°
RF Source:	Gunn-Effect diode
Receiver Type:	Two direct-conversion homodyne receivers using four low-noise Schottky barrier mixer diodes
Power Output:	10 mW minimum 15 mW nominal 25 mW maximum
Power Density:	1 mW/cm ² maximum at 5 cm from lens

See pages 16 - 17 for Packages, Developer Kits, Cables, Connectors, Manuals, and Software.

Control and Configuration Settings

Basic Configuration	Transmitter Control Zone Unit of Measure Unit Resolution Faster Target Tracking AUX Pin Configuration
Serial Port Configuration:	Baud Rate Output Format Leading Zero Character Format D Direction Character Enable (RS-232) Zeros After Target (RS-232) Message Period Format D Update on Change Only (RS-232) Format D Zero Report (RS-232) Polled Modes D0-D4 (RS-232)
Target Recognition:	Opposite Lane/Stationary Sensitivity Fine Sensitivity Adjust Sensitivity Hysteresis Low Sensitivity Target Strength Sensitivity Target Acquisition Quality Target Loss Quality
Target Filtering:	Stationary Low Cutoff Spurious Speed Filter Max AGC Gain Min AGC Gain Current AGC Gain
Speed Presentation:	Cosine 1 Angle Cosine 2 Angle Holdover Delay
Locking Targets:	Lock Option Faster Locking Enable Strongest Lock Fast Lock
Speed Alarm:	Alarm Speed Threshold
Audio:	Doppler Audio Volume Aud 0 Enable Variable Doppler Loudness Squelch Beep Volume
TX Power Save	TX On Time TX Off Time Keep TX On with Target Max TX On Time
Testing:	Fork Enable Auto Test Period Auto Test Mode Enhanced Test
System:	Get Product ID Get Product Type Get Software Version Speed Sensor Address (RS-485 only)

Stalker Speed CCTV Sensor

Take your CCTV to the next level by including a speed/date/time stamp on your video evidence.



FEATURES

- Compatible with most video surveillance systems
- Affordable and portable
- Tracks vehicles up to 900 feet
- Waterproof and weatherproof
- Low power consumption
- 1-Year parts and labor warranty

The Stalker Speed CCTV Sensor is accurate and powerful, and when added to an existing CCTV system, provides enforceable speed violation evidence for private use.

This sensor can be used to monitor speeds of vehicles at commercial facilities where controlled speeds are required to maintain a safe and productive environment.

Performance

Speed range	1-200 mph (1-321 km/h)
Speed resolution	1 mph (1 km/h)
Speed accuracy	+/- 0.3%
Range	900 feet (274 meters)
Update rate	20 times per second
Directivity	Closing, away, or both
Cosine adjustments	2 axis

Power

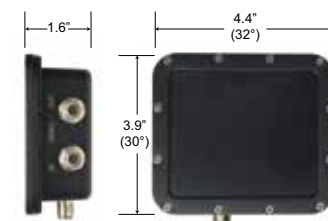
Voltage	10 to 30 VDC
Power	<1.5 watts
Current @ 12 VDC	125 mA

Microwave

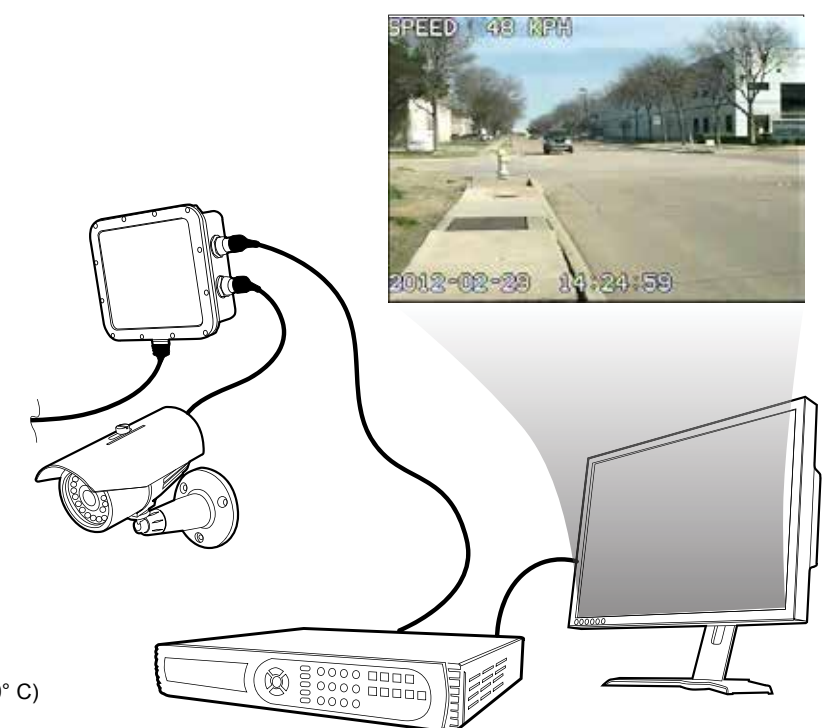
Frequency	24.125 GHz (US) 24.200 GHz (EU)
Power	100 mW
Beam width	30° by 32°
Certification	FCC part 15

Environmental and Packaging























Temp. range	-22° F (-30° C) to +158° F (+70° C)
Ingress rating	IP67
Housing	Die-cast aluminum
Size	4.4 x 3.9 x 1.6 inches (11.2 x 9.9 x 4 cm)
Mounting	4 x 10-32 UNF



The Stalker Speed CCTV Sensor is accurate and powerful, and when added to an existing CCTV system, provides enforceable speed violation evidence for private use.



See center spread for Packages, Developer Kits, Cables, Connectors, Manuals, and Software.

Sensor	Part number	Description	Range	Package(s)	Developer Kit(s)	I/O Cable	Connector(s)	Tech. Manual	User Manual	Software	
Stalker Stationary Speed Sensor II	200-0880-00	K-Band - Side port Speed Sensor. Low power consumption for speed trailers, pole mounted speed signs, and photo radar - protected by IP67 waterproof case.	.23 mi. .37 km	831-2010-00 Base* 831-2000-00 with Developer Kit**	200-1026-00	155-2360-01 RS-232 and RS-485 Power/serial data adaptor		011-0131-00	011-0131-01	Dashboard 200-0972-00	
	200-0880-52	K-Band - Rear port Speed Sensor, RS-232, RS-485, and USB. Low power consumption for speed trailers, pole mounted speed signs, and photo radar - protected by IP67 waterproof case.	.23 mi. .37 km	831-2002-00 Base* 831-1000-00	200-1026-00 RS-232 and RS-485 200-1028-00 USB	155-2360-01 RS-232 and RS-485 155-2357-01 USB		011-0131-00	011-0131-01	Dashboard 200-0972-00	
	200-0880-55	K-Band - Side port USB only. Track up to 10 moving vehicles simultaneously and internally records data for collection and download to PC for analysis.	.23 mi. .37 km	831-2100-00 Base*	200-1028-00 USB	015-0610-03 USB		011-0131-00	011-0131-01	Stalker Traffic Statistics App 200-0973-00 & Dashboard 200-0972-00	
	200-1004-00	K-Band Sensor without enclosure. Includes wiring harness ready for incorporating into OEM system.	.23 mi. .37 km	831-2200-00	N/A	155-2461-01		011-0131-00	011-0131-01	Dashboard 200-0972-00	
	200-1033-00 200-1033-10 with M12 connector	6° x 26° Narrow Beam K-Band sensor without enclosure. Includes wiring harness ready for incorporating into OEM system.	.23 mi. .39 km	831-2105-00 831-2106-00 with M12 connector		155-2461-00 155-2360-01 (M12)		011-0131-00	011-0131-01	Dashboard 200-0972-00	
Stalker Traffic Statistics Sensor	200-0880-01	K-Band - Side port. Track up to 10 moving vehicles simultaneously and internally records data for collection and download to PC for analysis.	.23 mi. .37 km	831-2299-00 Base* 831-2300-00 with Developer Kit**	200-1026-20	155-2360-01		011-0131-00	011-0131-01 (Speed Sensor) 011-0132-00 (Traffic Sensor) 011-0146-00 (App)	Stalker Traffic Statistics App 200-0973-00 & Dashboard 200-0972-00	
	200-0880-53	K-Band - Rear port Speed Sensor, RS-232, RS-485, and USB. Track up to 10 moving vehicles simultaneously and internally records data for collection and download to PC for analysis.	.23 mi. .37 km	831-2298-00 Base*	200-1026-20 RS-232 and RS-485 200-1028-20 USB	155-2360-01 RS-232 and RS-485 155-2357-01 USB		011-0131-00	011-0131-01	Stalker Traffic Statistics App 200-0973-00 & Dashboard 200-0972-00	
	200-0880-54	K-Band - Side port USB only. Track up to 10 moving vehicles simultaneously and internally records data for collection and download to PC for analysis.	.23 mi. .37 km	831-2402-00 Base*	200-1028-20 USB	015-0610-03 USB		011-0131-00	011-0131-01	Stalker Traffic Statistics App 200-0973-00 & Dashboard 200-0972-00	
	200-0880-56	K-Band - Rear port Speed Sensor, RS-232, RS-485, and USB memory stick port. Track up to 10 moving vehicles and internally records data for collection and download to PC via flash drive for analysis.	.23 mi. .37 km	831-2403-00 Base*	200-1026-20	155-2357-01 USB		011-0131-00	011-0131-01 (Speed Sensor) 011-0132-00 (Traffic Sensor)	Stalker Traffic Statistics App 200-0973-00 & Dashboard 200-0972-00	
	200-1033-01 200-1033-11 with M12 connector	6° x 26° Narrow Beam K-Band Traffic Statistics sensor without enclosure. Includes wiring harness ready for incorporating into OEM system.	.24 mi. .39 km	831-2405-00 831-2406-00 with M12 connector		155-2461-00 155-2360-01 (M12)		011-0131-00	011-0131-01	Stalker Traffic Statistics App 200-0973-00 & Dashboard 200-0972-00	
Stalker Speed CCTV Sensor	200-0981-00	K-Band - Add speed sensing capabilities to an existing CCTV system: Overlays current date with a time stamp, along with the speed of the strongest detected moving target.	.23 mi. .37 km	831-2501-00 Base* 831-2500-00 with Developer Kit**	200-1026-00	155-2360-01	 (X2)		011-0153-00	Dashboard 200-0972-00	

* **Base Packages:** Base packages consist of a sensor, unterminated cable, software, manual, and Certificate of Accuracy.

** **Packages with Developer Kits:** Packages with Developer Kits consist of sensor, Developer Kit (see page 15 for more information), tuning fork, dash mount, manual(s), and Certificate of Accuracy.