



SpeedSentry Traffic Calming Sign

Installation and User manual

Table of Content

1.	Installation	1
1.1	Step 1 – Mounting the Pole	1
1.2	Step 2 – Connect the Power	1-2
1.2.1	Mains Power Options	2
1.2.2	Solar Power Options	2
1.3	Step 3 – Switch on the SpeedSentry	3
1.4	Step 4 – Collecting and Analyzing In-Radar Traffic Statistics	3-12
1.4.1	Real Time Traffic Statistics in the Radar	4
1.4.2	Configuring the SpeedSentry unit	5-12
2	Setup Additional Configuration Options	12-13
3	SpeedSentry SPECIFICATIONS	13-14
4	Approvals	14-15
5	Performance	15-16
6	Version Control	16



SeedSentry Traffic Calming Sign

Installation

The SpeedSentry traffic calming sign is mounted onto either a dedicated or shared pole, from 50mm to 200mm in diameter.

Step 1 – Mounting the Pole

Place the V shaped cutouts against the pole and thread either steel strapping tape or appropriately sized Jubilee clips through the cutouts in the formed brackets. Loosely fasten the straps around the pole and then slide the SpeedSentry to the desired height above ground, usually 2.5 to 3m. Place the SpeedSentry as close to the roadway as possible, facing the oncoming traffic at as narrow an angle as is possible. Be aware that intervening trees and moving objects such as airconditioning fan blades have been known to create false readings in the SpeedSentry. Tighten the mounting straps properly to the pole, ensuring that the height and Angle to the traffic is correct.

Step 2 – Connect the Power

SpeedSentry is supplied with an internal battery that is fully charged. This battery will last anywhere from 2 to 5 days, depending on the traffic density and display brightness options selected.



2.1. Mains Power Options

The SpeedSentry unit is supplied with a 3metre trailing cable. It is recommended that the cable be protected from vandalism as far as possible – generally the power cables are run inside the mounting pole to the connection point. Drill an 8mm hole into the Mounting pole to allow access to the pole.

Note: The SpeedSentry mains connection is designed for 125V AC to 250V AC only. Contact AMBROSYS (Pty) Ltd if other power options are required.

2.2 Solar Power Options

Mount the SpeedSentry Solar Panel above the SpeedSentry unit and ensure that:

1. The Panel faces North
2. That the Panel is exposed to clear sunlight for the entire day.
Clear overhanging branches or any other obstructions that prevent direct sunlight
3. Connect the Solar Panel trailing cable plug to the socket underneath the top of the SpeedSentry Mounting Bracket.
Ensure that the retaining ring is screwed fully home to make sure that the fitting is waterproof.

Step 3 – Switch on the SpeedSentry

Locate the key switch at the bottom of the SpeedSentry and turn it to the ON position. Note that the key is trapped in the OFF position to minimize the chances of it being lost. The SpeedSentry will count from 1 to 10 on the display and then enter the active mode.

As soon as the SpeedSentry is switched on, the configuration and traffic statistics can be utilized.

Step 4 – Collecting and Analyzing In-Radar Traffic Statistics

The SpeedSentry™ supports optional “In-Radar” advanced traffic statistics collection. This feature is sold separately. If this feature is enabled, you may collect the stored statistics by using the provided Houston Radar Advanced Statistics Analyzer Windows program.

This program must be installed on a 64 bit Windows and allows the retrieval of stored statistics from the radar by using a PC serial port. It also has features to generate traffic reports, plot interactive graphs and export the raw data to a MS Excel file. Please refer to the online help functionality of the program after you install it on your computer for detailed instructions on how to use its functionality.

Real Time Traffic Statistics in the Radar:

The SpeedSentry™ In-Radar stats software now features” real time” histogram statistics. These are updated as soon as a vehicle is detected and may be read out as a speed bin count “histogram”. Thus, no historical records need be read out and parsed to read statistics.

This feature requires a host program to be on-line to read the live statistics. Please contact Ambrosys (Pty) Ltd for more information if you are interested in acquiring live statistics from the radar.

Internal Clock:

The SpeedSentry™ has a built-in clock/calendar function. This is used to keep the time to date/time stamp the historical archive records saved by the Advanced In-Radar traffic statistics collection feature that is available as an option in the radar.

Configuring the SpeedSentry:

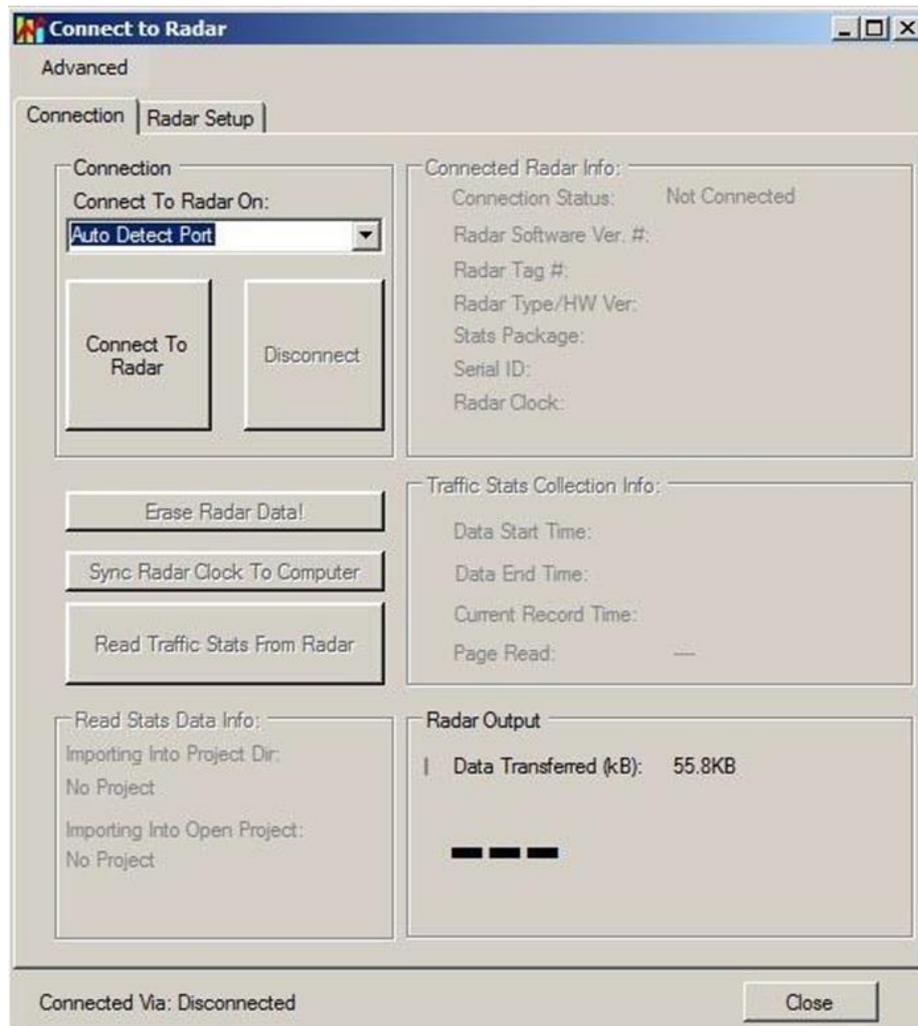
The SpeedSentry™ supports many user options and configurations that make it a very versatile device. A user-friendly MS Windows PC based graphical user interface (GUI) software is provided to make this configuration a snap for the end user.

Install the Houston Radar Stats Analyzer or Houston Radar

Configuration Tool provided with the SpeedSentry™ sign on your MS Windows PC. After starting the installed program, click on “FileConnect to Radar” at which time you will see the following screen.

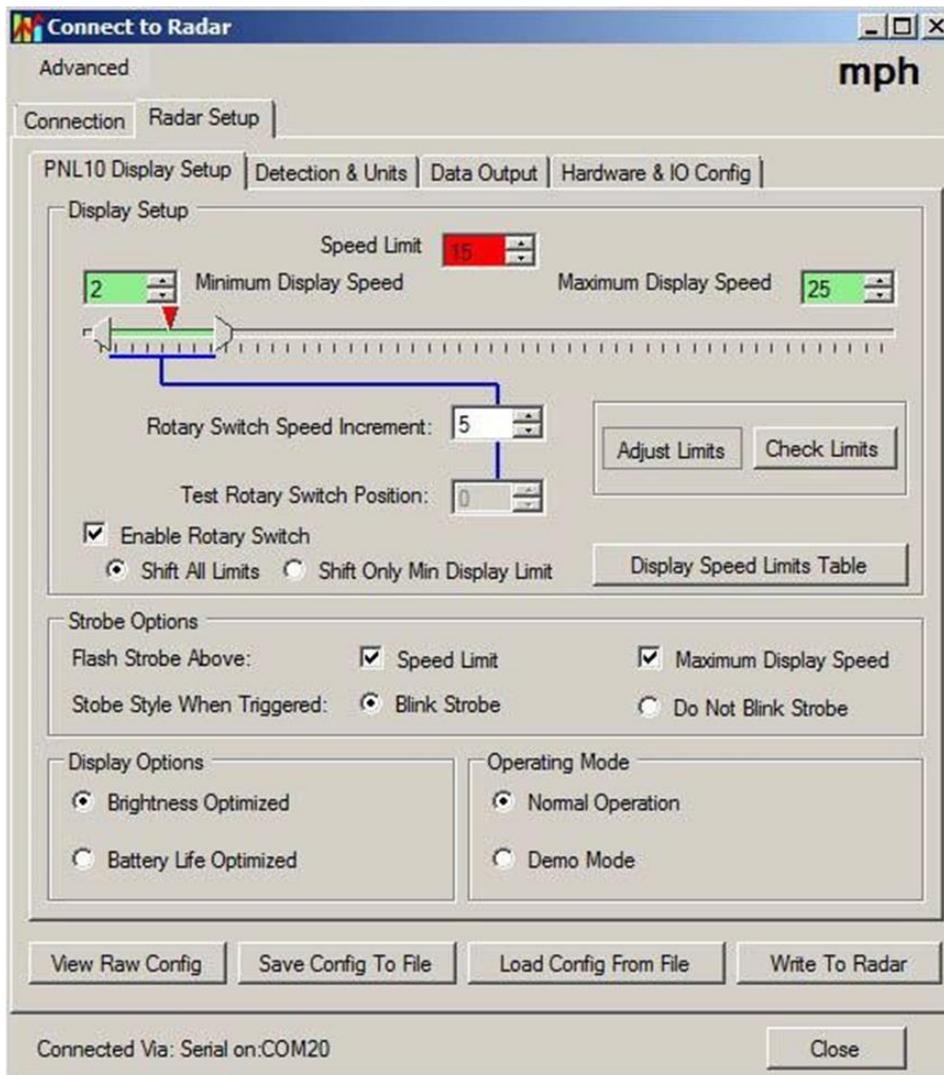
Connect to The Unit:

Step 1: Connect to the SpeedSentry™ in the “Connection” tab. Ensure you get “Radar Found” message and another window with radar details. Click past these messages.



Read The Radar Configuration:

Step 2: Click on the “Radar Setup” tab. The software will read the radar configuration and you should see this screen (actual values will depend on your SpeedSentry™).

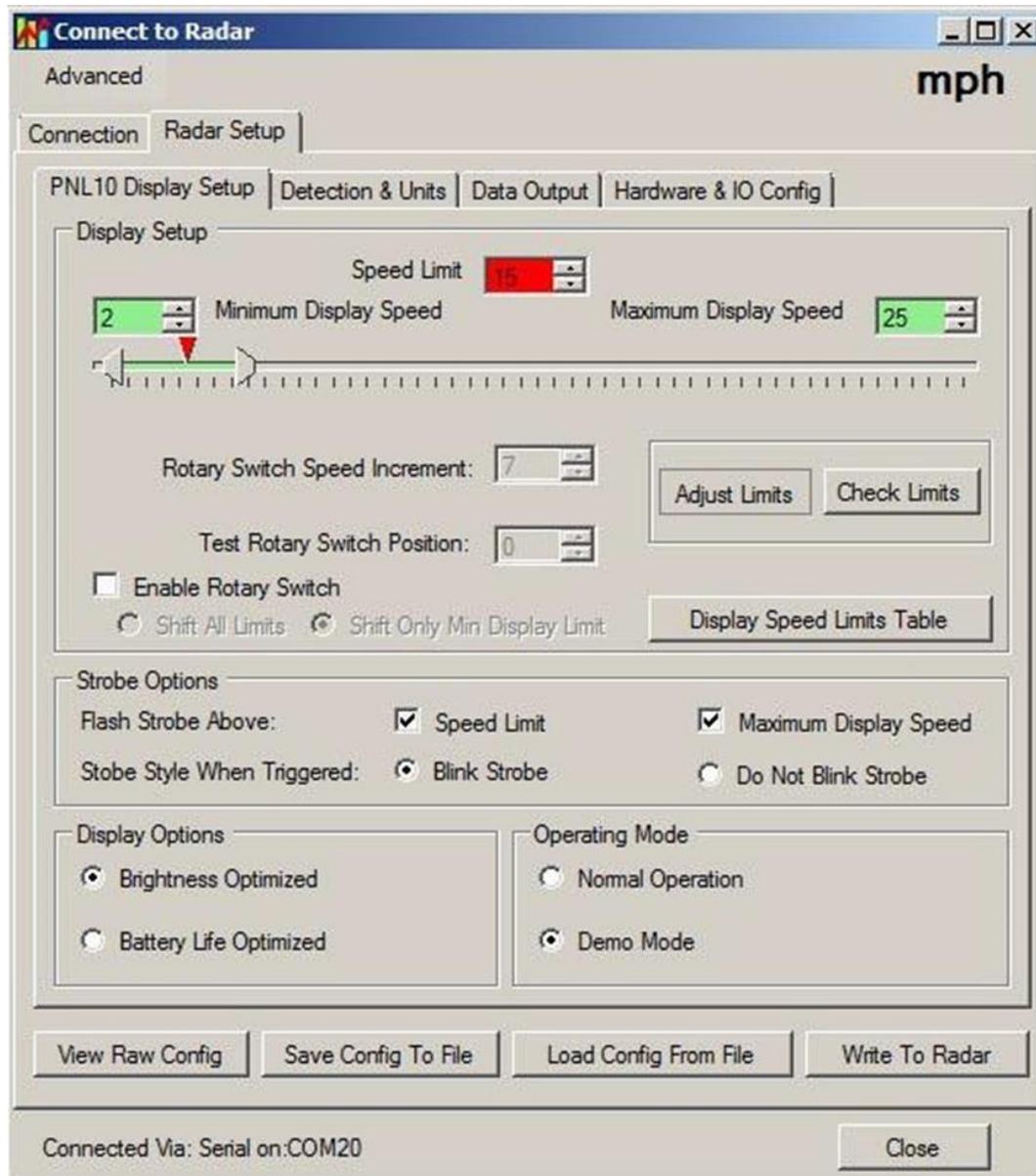


This screen contains the most frequently used settings in the SpeedSentry™

Setup The Display Limits (Permanent Location, Rotary Switch Disabled):

- Step 3:** Setup the display limits for your permanent location. The following screen shows the simplest option with the rotary switch disabled. We will discuss the rotary switch in the next section.
- Step 3A:** Disable the rotary switch if the sign will be in a permanent location and the display limits will be fixed (skip to next section if sign will be portable unit).
- Step 3B:** Set the Minimum display speed. Display will be blank below this speed.
- Step 3C:** Set the Maximum display speed. Display will be blank above this speed.
- Step 3D:** Set the Speed Limit. Display will flash above this speed to attract further attention. Users may choose to set this slightly above the actual speed limit on the road to prevent excessive flashing if traffic is moving just above the posted speed limit. However, the end user is the best judge of this value.

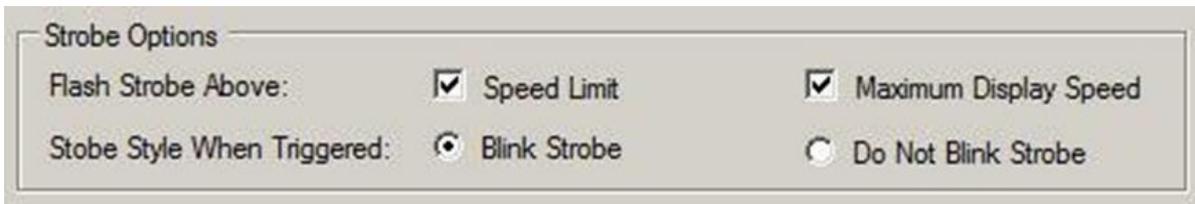




Setup The Display Limits (Portable Sign, Rotary Switch Enabled)

Setup White Strobe Configuration:

Step 4: Set the White Strobe cluster option and blink style to your preference. If you do not wish the strobe to be activated, simply uncheck both checkboxes.



The SpeedSentry™ has a white LED cluster (strobe light) arranged in a circle in between the two digits (this option may not be present in your display). The cluster strobes at a fast 10Hz rate to attract attention and may be selected to activate above the flashing speed limit as well as above the maximum display speed.

Note that if enabled above the flashing speed limit, the cluster will also illuminate above the maximum display speed. Strobe light is typically used to draw attention of the driver to the display and the fact that their current vehicle speed is above the posted speed limit or that they are driving at an unsafe speed.

The 10Hz modulation is implemented in the hardware and cannot be disabled via software. Ambrosys (Pty) Ltd if you require it to be disabled in hardware. Additionally, this strobe can be configured from this screen to blink on/off at a 1.4Hz rate together with the speed display.

Setup Display Brightness Configuration:

Step 5: The SpeedSentry™ automatically controls the display brightness for optimal visibility under all ambient lighting conditions. The ambient light is sampled by a built in light sensor located on the front face of the PCB or by an optional external light sensor

wired to the AUX connector. A control algorithm computes the optimal brightness and adjusts the average LED current via a PWM circuit. PWM circuit is designed to prevent flicker and colour distortion.

You may choose to bias automatic brightness control algorithm towards saving battery (Battery Life Optimized) or making the display brighter and hence more noticeable (Brightness Optimized).

In the “Battery Life Optimized” setting the display brightness is reduced by about 30% from the factory default setting for any ambient lighting condition. This can be particularly advantageous for portable signs operating solely off a battery and allow the sign to operate up to 30% longer under heavy traffic conditions. If you find the display brightness in-adequate, then set the display to “Brightness Optimized”.

Setup Operating Mode Configuration:

<p>Display Options</p> <p><input checked="" type="radio"/> Brightness Optimized</p> <p><input type="radio"/> Battery Life Optimized</p>	<p>Operating Mode</p> <p><input type="radio"/> Normal Operation</p> <p><input checked="" type="radio"/> Demo Mode</p>
---	---



Step 6: For normal operation of the sign on the road select “Normal Operation”. In this mode the radar will pick up actual targets in front of the unit and display them on the digits if they range between the Minimum Display Limit and Maximum Display Limit.

The SpeedSentry™ also supports a “Demo Mode”. In this mode, the radar generates a pre-programmed sequence of speeds and shows them on the display. Note that the speed limits still apply to these speeds, so selecting different limits will change what speeds are displayed and if the strobe is activated. The ambient light sensor and automatic display brightness control work as normal.

This can be a useful tool to test the sign on a low traffic road or inside an office or trade show floor.

In demo mode, the radar will not pickup and display actual traffic speeds.

A power cycle is required for the change to take affect after going from Normal to Demo mode or vice-a-versa. If you change modes



and save the configuration to the radar, the software will prompt you for a reboot. This allows you to change the mode from the PC without opening the SpeedSentry™ box and physically power cycling the unit.

Write the Configuration to the SpeedSentry™ :

Step 7: Write the Configuration to the SpeedSentry™ by clicking on the “Write to Radar” button. You must click this button and be presented with the

Configuration Saved” message before your changes are saved to the connected SpeedSentry™.

Setup Additional Configuration Options:

The Houston Radar model SS300. It supports numerous other options like detection sensitivity, programmable serial port baud rate, different measurement units (mph, kph, fps, mps) and fractional high precision speed output over the serial port. If you wish to configure these options, click the “Detection and Units”, “Data Output” and “Hardware and IO” tables to make changes to these other infrequently adjusted settings.

PNL10 Display Setup | **Detection & Units** | Data Output | Hardware & IO Config

Speed Units

Speed/Limits Units

Speed Detection Limits

Please set the speed limits in the 'PNL10 Display Setup' tab

Detection Sensitivity (% of Max Range)

Min 10% Max 100%

Detection Direction

Incoming Outgoing

Select Target For Output

Select Fastest Select Strongest

Slow Speed Targets Filter

Favor Rejection of False Slow Targets Over Detection Latency

Tuning Fork Test

Pickup Tuning Fork for 30 secs After Power Up (Detects Both Directions For This Duration)

SpeedSentry Specifications:

General

Operating Band K-Band

Frequency 24.125 GHz \pm 50Mhz (US) or 24.20Ghz (UK, Australia)

Power Output 5mW

Antenna Beam Pattern 45 deg x 38 deg

Polarization Linear

Supply Voltage 5.6V DC to 16V DC (18VDC Maximum)

Reverse Battery Protected

Nominal Current Draw Display blank: 9.5 mA (@12VDC including radar) Display at night: 21 mA

Display at max brightness: 415 mA

Operating Temp. -40°F to +185°F (-40°C to +85°C).

Weatherproof No. IP65.

IR Remote Programmable No

Approvals:

Radar Approvals FCC Part 15, modular approval (US Version), CE Mark.

Data Interfaces

Serial Communication RS232 Data Rate 1200 to 115200 baud

Data Connector DB9 Female with RS232 levels wired as a DCD.

Use 3 wires straight through cable to PC RS232 port.

Power Screw terminal default. Can be user specified.



Minimum quantity order size may apply. Contact us for details.

AUX 2mm pitch 4x2rows. Sullins part # NPPN042GFNS-RC

Use mating Sullins part # NRPN042MAMS-RC or equivalent

Optical

LED Color ITE Amber (592nm \pm 4nm) for digits. White for strobe cluster

White LED digits are available as an option. Contact us for more information.

Brightness 11,000 nits (cdm) maximum, controlled automatically via onboard light sensor 550nits at night.

Performance:

Resolution \pm 0.006 mph (internal and available on serial port) rounded to whole mph (kph) when shown on display. Accuracy \pm 0.4% of reading + 0.1mph

Detection Range Typically 90+ m (300+ feet) for compact vehicles on open and level road with radar mounted 1.5 m (5 feet) high and pointed straight into oncoming traffic. 150+ m (500+ feet) for larger trucks, lorries and vehicles with inherently large radar cross-section. May vary with installation and road conditions.



Detection range specified is typical for speeds between 20kph and 88kph (12 to 55 mph). It tapers off below and above this speed range. At the low end of the speed range (2mph/ 5kph), The detection range is about 34+ m (110+ feet). SpeedSentry™ is not recommended for roads with speeds above 90 kph (56 mph) due to reduced range and tracking time.

Contact Houston Radar if a low speed operation (down to 0.25 mph) is required.

Version Control

Version	Date	Changes
V1.0	6 April 2015	Original Document
V2.0	6 August 2019	Re-design