



SI-3

Configuration Manual



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Equipment Needed

- SI-3 radar device
- SI-3 Programming cable (S769-127-0)¹
- PC with a usable RS232 serial port or USB-to-RS232 adapter.
- RS232 cable to connect between the Power and Communications adapter and the PC (if needed). This cable is a 9-pin RS232 cable with a male connector on one end and female connector on the other.
- SI3 configuration CD (S785-1-0)
- 12V power supply

1 Device Configuration

Apply 12V power to the SI3 through the programming cable. Run the SI3 Config program. The opening screen is shown in Figure 1.

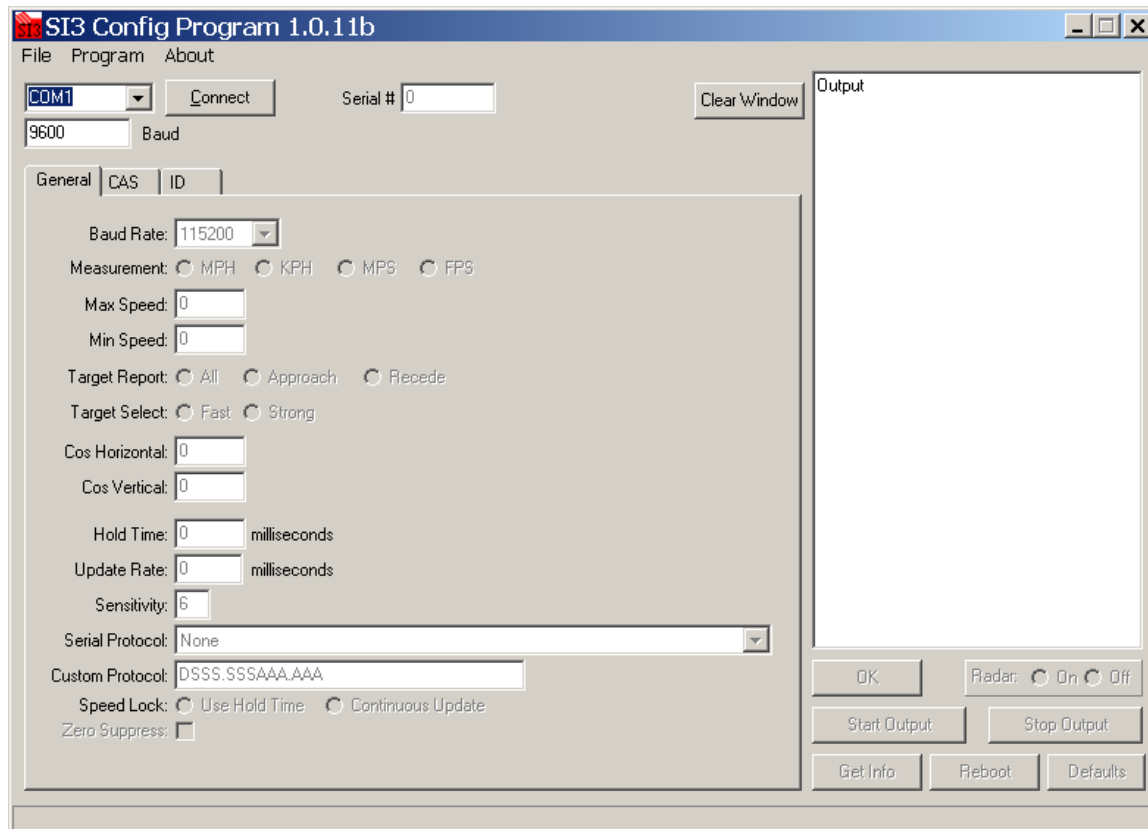


Figure 1 - SI3 Config Program

¹ Pin 1 is the +12V supply to the SI-3 and pin 9 is the power ground, then it continues as a regular RS232 pinout with pin 2 = Rx, pin 3 = Tx, and pin 5 = signal ground.

Select the COM port that your PC will use to connect to the SI3 program (typically Com1 or Com2). Change the baud rate if necessary – the SI-3 default baud rate is 9600. Press the *Connect* button near the top of the window. SI3 Config will query the RS232 line to see if an SI3 is connected to the computer. If it responds with the “Unable to connect” message in the status bar on the bottom of the window you need to check your connections between the PC and the SI3.

If SI3 Config is able to connect to the SI3, the screen will appear as shown below in Figure 2. In this screen the information that appears accurately depicts the present configuration of the SI3. Any changes made to the SI3 configuration are sent and stored in non-volatile memory. If you turn off the SI3 while the SI3 Config program is connected, just press the *Disconnect* button and reconnect.

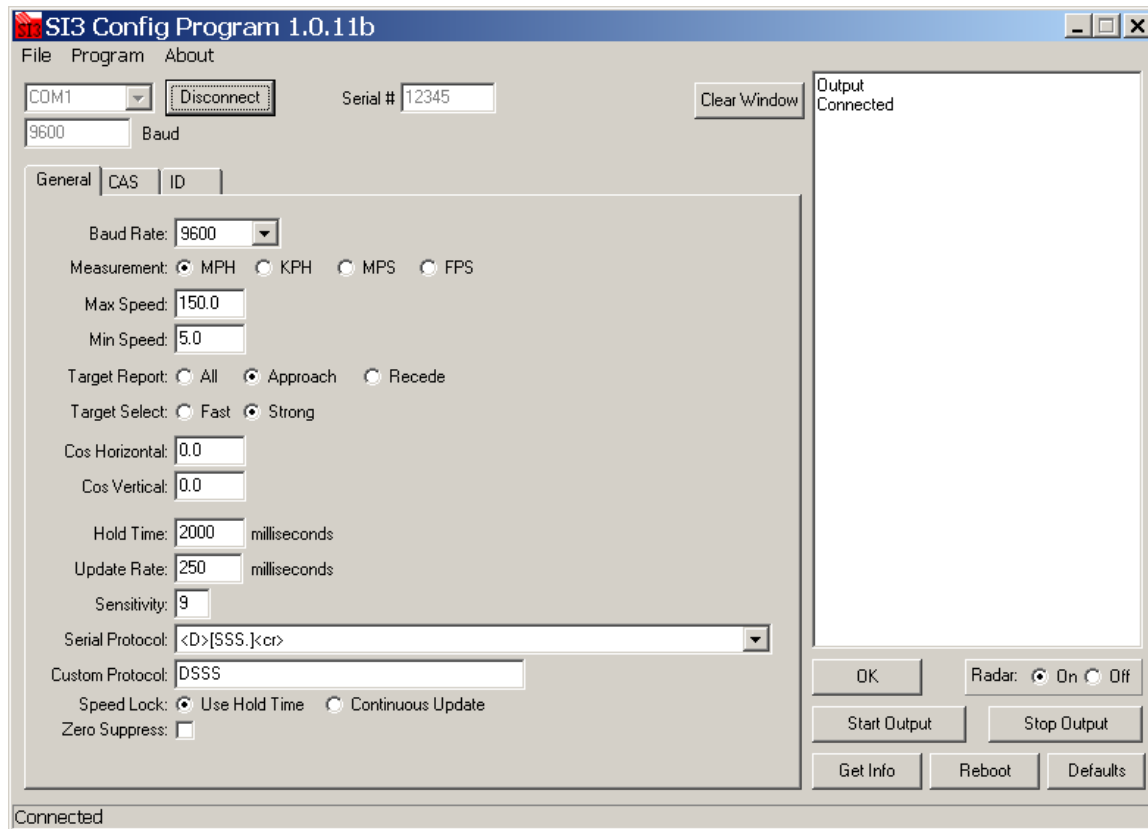


Figure 2 – Connected

Any grayed-out box such as the serial number box is for reference only and cannot be changed. The *OK* button sends an OK command to the device which then responds with the message “OK”. This feature can be used to check communication status at any time. The *Defaults* button sends a command to put the configuration back to the factory default settings. If you have changed baud rate, pressed the *Default* button, then find that the SI3 will no longer respond to commands you need to reconnect at 9600 baud before you can change the SI3 back to your desired baud rate. The *Get Info* button retrieves the present configuration from the SI3 and updates the displayed configuration. This command can be used to resync SI3Config with the SI3 if you’ve power-cycled the SI3 while it was connected to the SI3Config program.

1.1 Configuration Notes

With the exception of baud rate, all changes occur immediately and do not require a reboot of the SI3 to become operational. When baud rate is changed it takes effect the next time the SI3 is power-cycled. **Please wait 2 seconds after the last configuration command before disconnecting power to allow the SI-3 to record the setting in flash memory.**

1.2 Baud Rate

The baud rate can be 1200, 2400, 4800, 9600, 19200, 38400, 57600, or 115200 bits per second. The SI3 always uses 8 bits, no parity, and one stop bit for its serial port configuration.

1.3 Measurement

MPH = miles per hour, KPH = kilometers per hour, MPS = meters per second, and FPS = feet per second.

1.4 Min/Max Speed

No vehicles will be reported outside the minimum and maximum configured speeds.

1.5 Target Report

A Target Report selection of "All" reports vehicles coming towards or away from the SI-3. "Towards" displays vehicles coming towards the SI-3, and conversely for the "Away" setting.

1.6 Target Select

A Target Select value of "Strong" is the standard SI3 Configuration. Changing to "Fast" will report the fastest vehicle seen within the range of the SI3.

1.7 Cos Horizontal and Cos Vertical

For bridge-type installations where the SI3 is over the traffic and pointing slightly down, the vertical angle can be entered here to ensure that the SI3 calculates the correct vehicle speeds. For installations where the SI3 is at a significant angle from the road, the horizontal angle can also be configured. These two may be used together. **Please keep the angles between 0 and 45 degrees for maximum accuracy.**

1.8 Update Rate

The selected message format is sent every *Update Rate* milliseconds. The *Update Rate* can be as low as 20 milliseconds. The number should be a multiple of 20 milliseconds. The *Update Rate* and the amount of serial port activity do not affect the measurement accuracy of the SI3.

1.9 Hold Time and Speed Lock

When the *Speed Lock* is configured as *Use Hold Time*, the *Hold Time* value indicates the time the vehicle speed is displayed after the vehicle moves out of range. If the *Use Continuous Update* is selected this value has no affect.

1.10 Sensitivity

The SI-3 is shipped with a default sensitivity of **9** and this should work for most applications. The sensitivity can be increased for further range or decreased for a closer range. If the sensitivity is too low the SI3 may take too long to lock onto and display a vehicle's speed.

Typical ranges for an on-coming mid-sized sedan are:

Setting	Range (feet)
1	350
2	575
3	800
4	950
5	1300
6	1700
7	1875
8	2400
9	2800
10	>3000

The distances will vary based on location, body of the car and alignment of the antenna. It is normal for the range to vary by 10% on identical cars.

1.11 Serial Protocol²

Refer to the manual for the sign for more information on which protocol to use. **<D>** is a direction character that is “+” for vehicles coming towards the sign, “-” for vehicles going away, and “?” when the direction cannot be determined. **[S]** represents the displayed speed. If a period is within the square brackets it is the decimal point. Any zero's are sent as described and do not change with a vehicle's speed. The **<cr>** signifies the end of the outgoing message. The default setting is **<D>[SSS.]<cr>**. Other protocols listed are used by Decatur for testing purposes. Zero Suppress

When this value is selected the SI3 will not send any information over the RS232 port unless a vehicle is detected.

1.12 Start and Stop Output Buttons

These buttons are used to start and stop the continuously updated serial protocol. Any configured Serial Protocol will resume periodic data transmission after a power-cycle. The *Stop* command is used to temporarily stop the periodic data transmission. This *Stop* state is not retained after a power-cycle. The Clear Window button will clear the output window.

1.13 Radar On/Off button

The Radar On / Off buttons turn the radar transmitter on and off.

² When a serial protocol is running and a command is sent to the SI3, the SI3 does receive and perform the requested function. However, the returned “OK” may be inserted anywhere in the data stream and the resulting action on the host computer can not be guaranteed. Example: The protocol is sending out “123.4”. If a command is sent to the SI3, the response may be “12OK3.4”. For this reason it is recommended that the “Stop” command be sent prior to any change in serial protocol if a serial protocol has been selected previously.