



# SI-3L™

System Interface 3  
Low Profile



## User's Manual

Rev 2/11/2013





**SI-3L™**

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Low Profile**

**User's Manual**



**SONCELL NORTH AMERICA**  
A PUBLIC SAFETY COMPANY

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## Welcome To Decatur Electronics, Inc.!

Thank you for choosing this Decatur Electronics product—the System Interface 3 Low Profile(SI-3L)™, a highly advanced, low profile directional radar unit that will reward your department with years of dependable service. The SI-3L™ incorporates high performance and long range with many leading features. We urge you to study this manual before using the SI-3L™ so you can maximize the benefits of this sophisticated radar device. We believe you will be pleasantly surprised by the features and advantages.

If you are as pleased with its performance as we think you will be, ask your Decatur sales representative about other Decatur products including the Genesis™ line of radars, the Onsite™ line of speed trailers, dollies, pole signs and the Responder™ line of in-car video systems.

Try any one of our products and see if you don't agree that it is the best-in-class!

—The Management and Staff at Decatur Electronics

## About This Manual

This manual contains valuable information to help you set up, use and maintain your radar so you can optimize its life and keep it at peak performance. Please take a moment to read through it, and keep it handy for future reference.

### Note the following symbols in this manual:



Indicates a warning message about safety precautions. Please read it carefully.



Indicates a helpful tip or precaution to note.

## 1. Safety Information

All service needs should be referred back to the manufacturer.



### WARNINGS

- Do not over voltage the radar - it can damage the unit!
- The SI-3L™ is designed to operate off of conventional +12 VDC (+9 VDC to +24 VDC) from the serial cable.

## Important Warnings



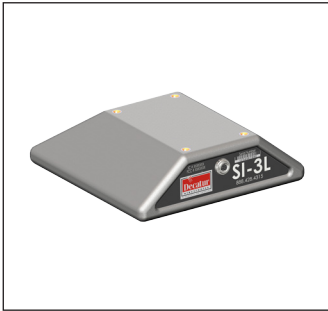
- Opening the SI-3L™ automatically voids any warranty still in effect. There are no user serviceable parts inside.
- Do not expose the SI-3L™ to excessive moisture. Never submerge the device.
- Do not drop the SI-3L™ on hard surfaces since damage could occur. Units damaged by dropping or abuse are not covered for warranty repair.

Violation of these guidelines may void the warranty.

## 2. Receiving Inspection

When you receive your SI-3L™:

- Inspect it for any freight damage that might have happened during shipping or unloading. Take pictures to document any damage.
- Notify the freight company immediately of any damage, preferably while the driver is present.
- Record the damage on the bill of lading and keep a record of the problems or damage.
- The package should include the following pictured items along with this User's Manual.



**SI-3L™**



Programming Disk



**S900-34**  
Tuning Fork



**S769-78551-0**  
Serial cable



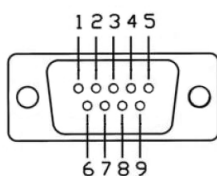
### 3. Getting Started

#### 3.1 Introduction

The SI-3L™ is a low profile radar specifically designed to measure speeds and export that speed information as RS232 data via the special serial cable. This allows the SI-3L™ to be used for a wide range of applications such as Radar Speed Trailers, traffic speed data collection (when used with the Decatur EZ Stat™ data logger) or other uses where speed monitoring is desired. The SI-3L™ comes with a Programming disk that allows the user to configure certain parameters of the SI-3L™ for specific applications. Refer to Chapter 4 for configuration information. Additionally, a Radar Monitor program is also available that allows you to display speed information on your computer and record that information to a text file for analysis.

#### 3.2 Connecting the Serial Cable

The SI-3L™ operates off of +12VDC and comes with a cable that has two connectors. The circular connector plugs into the SI-3L™ and the DB-9 serial connector (shown in Figure 3.2) is used for powering and communicating with the SI-3L. When connecting the cable it is important to understand that unlike standard RS232 serial connectors that have no +12VDC provisions, the SI-3L's™ serial connector has two pins dedicated to B+ and ground for the purpose of powering the unit. Figure 3.2 shows the pin arrangement.



**Figure 3.2**

Front view SI-3L™ Serial Connector

#### Top Row

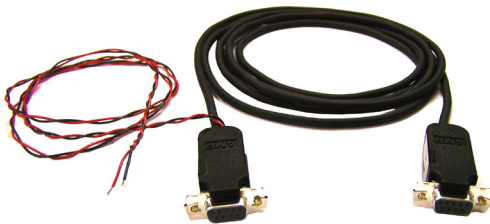
- Pin 1 = +12VDC (power)
- Pin 2 = RS232 TX
- Pin 3 = RS232 RX
- Pin 4 = N/C
- Pin 5 = RS232 Ground

#### Bottom Row

- Pin 6 = N/C
- Pin 7 = N/C
- Pin 8 = Remote On
- Pin 9 = Ground (power)

### 3.3 Optional Programming Cable

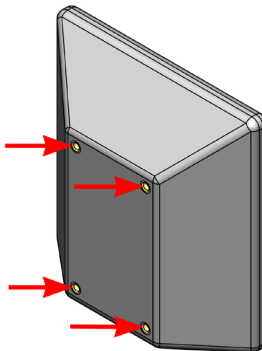
For configuring and testing purposes a programming cable is available. The cable is designed with two DB-9 connectors and a black and red wire for supplying B+ and ground to the SI-3L™. One end of the cable plugs into the serial port of a computer and the other end into the SI-3L™. The same end that plugs into the SI-3L™ has a red wire that is connected to +12 VDC and a black wire that is connected to ground. A regulated power supply can be used to supply the +12 VDC. Once the programming software is installed on the computer then the SI-3L™ can be accessed and parameters changed to meet your application. Refer to Chapter 4 for programming information.



**Figure 3.3**  
S769-127-0  
Optional Programming Cable

### 3.4 Mounting Configuration

The SI-3L™ comes equipped with four mounting holes on the reverse side (See Figure 3.4). Use these holes only to mount the SI-3L™.



**Figure 3.4**  
Mounting hole locations

## 4. Configuring the SI-3L™

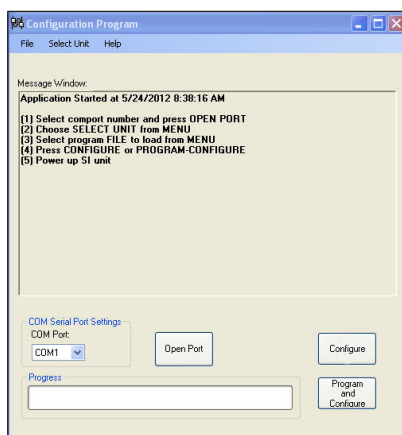
Before proceeding make sure your computer has Microsoft® Net Framework Version 4.0™ installed. If not, you can install it by going to: <http://msdn.microsoft.com/en-us/netframework/aa569263.aspx>.

### 4.1 Equipment Needed

- SI-3L™ radar device
- SI-3L™ Programming cable (S769-127-0)
- PC with either a usable RS232 serial port or a 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.
- SI-3L™ configuration CD (S785-1-0)
- 12V power supply

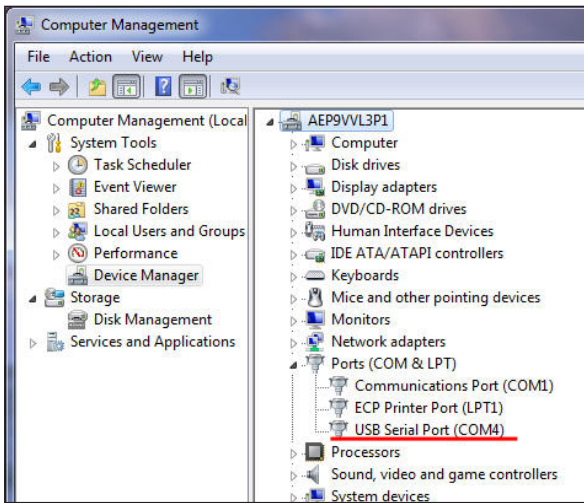
### 4.2 Configuration Program Screen

1. Apply 12VDC power to the SI-3L™ through the programming cable. Open and run the SI-3L™ Config 4 (configuration) program; which is shown in Figure 4.2a.



**Figure 4.2a**  
Configuration Program screen

- The SI-3L™ is designed to be connected to the computer's serial port. If you do not have a serial port and are using a USB to Serial adapter make sure the adapter has been installed per the instructions that came with it. Next, connect the SI-3L™ to the computer through the adapter and check the Device Manager/Ports. The port assignment will appear as "USB Serial Port". Note the port assignment. The example in Figure 4.2b shows that Port 4 has been assigned. Your port assignment may be different and the port assignment can change the next time the USB to Serial adapter is plugged in.



**Figure 4.2b**  
Device Manager screen

- From the Configuration Program/Com Serial Port Settings screen (Figure 4.2c) click on the down arrow and select the COM port that your PC has assigned. If you are connecting through the computer's serial port, it will normally be "Com 1" or "Com 2". If you are using the USB to Serial adapter, use the port shown in Device Manager/Ports.



**Figure 4.2c**

Front view SI-3™ Serial Connector

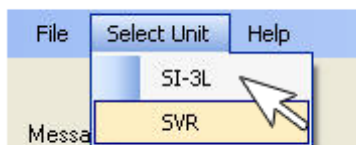
4. Once the COM port has been selected, left click on the "Open Port" button. A "COM port OPEN" message will be displayed indicating that the COM port is now active.
5. Next, go to the top of the Configuration Program Screen and click on the "Select Unit" tab of the tool bar (Figure 4.2d)



**Figure 4.2d**

Click on the Select Unit tab

6. When the tab opens select "SI-3L".



**Figure 4.2e**

Select SI-3L

### 4.3 Configuration Items Screen

Once "SI-3L" has been selected the "SI-3L Configuration Items" screen will be displayed as shown Figure 4.3.

The screenshot shows the "SI-3L Configuration Items" dialog box. It features several sections for configuration:

- Serial Number:** Input field with value 0.
- Unit ID:** Input field with value 1.
- Units:** Radio buttons for mph, km/h (selected), m/s, and fps.
- MAX Speed:** Input field with value 150. Max speed for this unit is: 330.
- MIN Speed:** Input field with value 10. Min speed for this unit is: 10.
- Direction:** Radio buttons for All, Approach and Recede, Approach (selected), and Recede.
- Target:** Radio buttons for Strongest (selected) and Fastest.
- CDS Horizontal:** Input field with value 0. Angle in degrees 0 to 60 max.
- CDS Vertical:** Input field with value 0. Angle in degrees 0 to 60 max.
- Hold Time:** Input field with value 1000. Milliseconds (Time before speed blanks).
- Update Rate:** Radio buttons for 1 \* Sec (selected), 3 \* Sec, 5 \* Sec, 8 \* Sec, and Upon Change. Polled "P" is also present.
- Sensitivity:** Input field with value 10. 1 to 10 max.
- Alarm Speed Threshold:** Input field with value 0. Speeds higher than this will enable output trigger.
- Baud Rate:** Radio buttons for 1200 (selected), 19200, 2400, 38400, 4800, 57600, and 9600.
- Serial Protocol:** Dropdown menu with value <D>SSS<cr>.

**Figure 4.3**  
Configuration Items screen

The "SI-3L Configuration Items" screen allows for the setting of several different parameters so that you can tailor the SI-3L™ to your application. An explanation of each setting starting at the top of the configuration screen follows:

#### 4.3.1 Serial Number

Enter the serial number that is on the serial tag of your SI-3L™. Use only the numbers and ignore any preceding letters.

#### 4.3.2 Unit ID

The ID number of the radar device. In the case of the SI-3L™ the Unit ID is "1".

### 4.3.3 Measurement

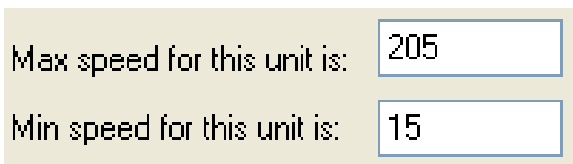
Select the speed format that the SI-3L™ is to use.

- Miles-per-hour - Select "mph"
- Kilometers-per-hour - Select "km/h"
- Meters-per-second - Select "m/s"
- Feet-per-second - Select "fps"

The maximum and minimum speed range for each of the speed formats will be displayed in the "Max speed for this unit is:" and the "Min speed for this unit is" windows. The speed ranges for the various selections are:

- For "mph" the speed range is 15-205 mph
- For "km/h" the speed range is 10-330 km/h
- For "m/s" the speed range is 3-90 m/s
- For "fps" the speed range is 10-300 fps

As an example, Figure 4.3.3a shows the speed range when the "mph" speed format is selected.

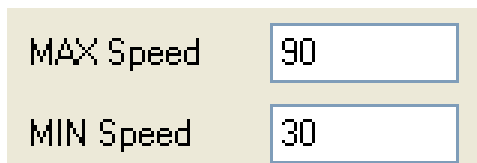


Max speed for this unit is:

Min speed for this unit is:

**Figure 4.3.3a**  
Speed range for mph

The speed range can be adjusted within those ranges by changing the speed readings that appear in the "MAX Speed" and "MIN Speed" windows (See Figure 4.3.3b). No vehicles will be reported outside the minimum and maximum configured speeds



MAX Speed

MIN Speed

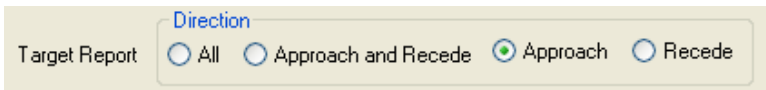
**Figure 4.3.3b**  
Set the speed range you want to use

As an example, when "mph" is selected the minimum and maximum speeds that can be processed are 15 to 205 mph respectively. However, if the SI-3L™ is going to be used in an application where any speed above 90 mph is to be ignored, then the "MAX Speed" window can be changed to 90 and no speed above 90 will then be processed. Likewise, if the SI-3L™ is to be used where no speeds below 30 mph need to be considered then setting the "MIN Speed" to 30 will cause the SI-3L™ to not report any speeds below 30 mph.

#### 4.3.4 Target Report

The "Target Report" has four selections and allows you to set the direction reporting of the SI-3L™.

- **All** - Tracks the strongest overall target signal regardless of direction.
- **Approach and Recede** - Tracks the strongest true directional target coming towards or going away from the SI-3L™. This mode contains directional filtering that will filter out any signal that doesn't have a good directional signal.
- **Approach** - Tracks the strongest true directional target coming towards the SI-3L™. This mode contains directional filtering that will filter out any signal that does not have a good directional signal.
- **Recede** - Tracks the strongest true directional target going away from the SI-3L™. This mode contains directional filtering that will filter out any signal that does not have a good directional signal.

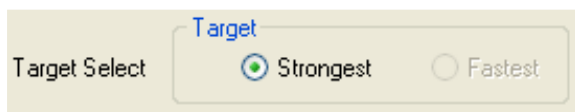


**Figure 4.3.4**  
Target Report



### 4.3.5 Target Select

Currently not selectable. A Target Select value of "Strong" is the standard SI-3L™ configuration.



**Figure 4.3.5**  
Target Select

### 4.3.6 Cosine Horizontal and Cosine Vertical

For bridge-type installations where the SI-3L™ is over the traffic and pointing slightly down, the vertical angle can be entered here to ensure that the SI-3L™ calculates the correct vehicle speeds. For installations where the SI-3L™ is at a significant angle from the road, the horizontal angle can also be configured. These two may be used together. **Keep the angles between 0 and 45 degrees for maximum accuracy.** Default is "0".

COS Horizontal	<input type="text" value="0"/>	Angle in degrees 0 to 60 max
COS Vertical	<input type="text" value="0"/>	Angle in degrees 0 to 60 max

**Figure 4.3.6**  
Cosine settings

### 4.3.7 Hold Time

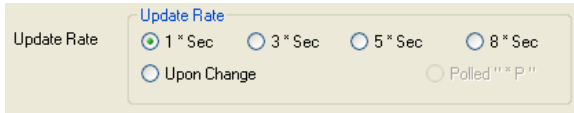
The "Hold Time" value indicates the length of time in milliseconds the vehicle speed is displayed after the vehicle moves out of range. The default "Hold Time" is 1000 milliseconds.

Hold Time	<input type="text" value="1000"/>	Milliseconds (Time before speed blanks)
-----------	-----------------------------------	---

**Figure 4.3.7**  
Hold Time

### 4.3.8 Update Rate

The selected speed format will be sent in whatever time interval (in milliseconds) that you set. 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 SI-3L™. The default rate is 1 Second.



**Figure 4.3.8**  
Update Rate

### 4.3.9 Sensitivity

The SI-3L™ has a sensitivity range of 1-10 and is shipped with the range setting at the (10) maximum (See Figure 4.3.9). The sensitivity can be decreased for closer range if needed. When changing the "Sensitivity" remember that if the setting is too low the SI-3L™ may take too long to lock onto and display a speed and if too high it may lock onto distant targets that are undesired.

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.

Sensitivity	<input type="text" value="10"/>	1 to 10 max
-------------	---------------------------------	-------------

**Figure 4.3.9**  
Sensitivity Setting

#### 4.3.10 Alarm Speed Threshold

When the target speed is greater than the "Alarm Speed Threshold" setting the output line will go low (open collector output).

Alarm Speed Threshold	<input type="text" value="0"/>	Speeds higher than this will enable output trigger
-----------------------	--------------------------------	--

**Figure 4.3.10**  
Alarm Speed Threshold

- • *Maximum source current for the open collector output is 50 mA. Exceeding the 50 mA limit can damage the SI-3L™.*

#### 4.3.11 Baud Rate

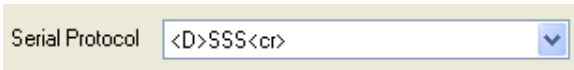
The "Baud Rate" can be 1200, 2400, 4800, 9600, 19200, 38400, 57600, or 115200 bits per second. The SI-3L™ always uses 8 bits, no parity, and one stop bit for its serial port configuration. The default baud rate is 1200.

Baud Rate	Baud Rate			
	<input checked="" type="radio"/> 1200	<input type="radio"/> 2400	<input type="radio"/> 4800	<input type="radio"/> 9600
	<input type="radio"/> 19200	<input type="radio"/> 38400	<input type="radio"/> 57600	<input type="radio"/> 115200

**Figure 4.3.11**  
Baud Rate

### 4.3.12 Serial Protocol

Currently there is only one protocol available. <D> is a direction character that is "+" for vehicles coming towards the sign, "-" for vehicles moving 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 zeros are sent as described and do not change with a vehicle's speed. The <cr> signifies the end of the outgoing message.

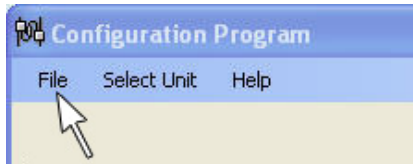


**Figure 4.3.12**  
Serial Protocol

### 4.4 Select Program FILE to Load from MENU (Optional)

From time to time Decatur Electronics will release new firmware for the SI-3L™. If you have received new firmware then save the firmware to a file on your hard drive remembering the path to where the file is saved.

If you have new firmware and need to configure the firmware to the SI-3L™ then click on the "File" tab at the top of the screen.



**Figure 4.4**  
Click on the "File" tab

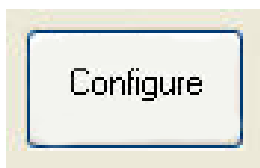
From "File" go to where you have saved the new firmware and click on the file. Next, proceed to Section 4.5.

### 4.5 Press CONFIGURE or PROGRAM-CONFIGURE

Two options are available. You can either configure the SI-3L™ to only accept the changes you have made to the "SI-3L Configuration Items" screen (Figure 4.3a) *or* you can configure the SI-3L™ to accept the changes you have made to the "SI-3L Configuration Items screen" and to also accept the new firmware.

### 4.5.1 Configure

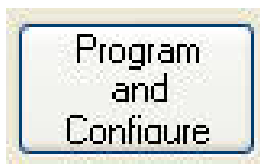
Select the "Configure" button if you want to *only* have the SI-3L™ accept the changes that have been made to the "SI-3L Configuration Items" screen.



**Figure 4.5.1**  
Configure Only button

### 4.5.2 Program and Configure

Select the "Program and Configure" button if you want the SI-3L™ to accept the changes that have been made to the "SI-3L Configuration Items" screen *and* to program the SI-3L™ with new firmware.



**Figure 4.5.1**  
Program and Configure button

## 4.6 Power Up SI Unit

Once all selections have been made and the proper configuration button has been pressed, power up the SI-3L™. Once powered and properly connected the SI-3L™ will accept the updated programming.

## 4.7 Configuration Notes

All changes occur immediately and do not require a reboot of the SI-3L™ to become operational.



- *Please wait 2 seconds after the last configuration command before disconnecting the power to allow the SI-3L™ to record the setting in flash memory.*

## 5. Performance Tips

Understanding potential radar interference and what to do when it occurs can greatly increase the radar's performance.

### 5.1 How Radar Works

Determining an object's speed begins with the radar transmitting a beam of microwave energy (radio waves) at an approaching or departing target. When energy from this beam strikes a target, a small amount of the beam is reflected back to the antenna. The reflected signal frequency shifts by an amount proportional to the speed of the target. This is known as the Doppler effect. The radar device then determines the target speed from the difference in frequency between the reflected and transmitted signal.

### 5.2 Interference Sources

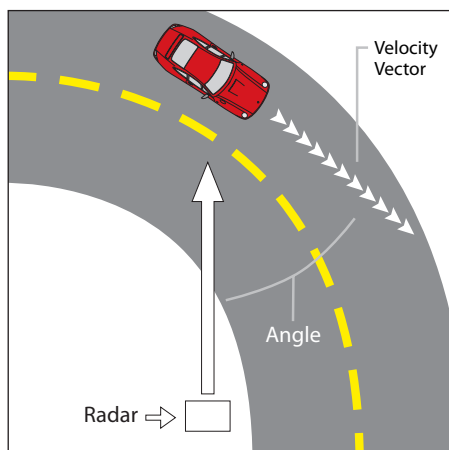
When properly installed and operated, Doppler radar technology is extremely accurate and reliable. However, variations in the environment can cause situations and circumstances which can cause spurious (erratic and unusually low or high) speeds to display. Signs that a speed is spurious can include the following characteristics:

- A reading appears when no target is in the operational range of the antenna.
- A target entering the operational range overrides the interference signal, causing the display speed to change suddenly to the target's speed.
- Speeds are irregular.

#### 5.2.1 Angular Interference (Cosine Effect)

The cosine effect causes the system to display a speed which is lower than the actual target speed. This condition occurs when the target's path is not parallel to the antenna such as the target vehicle traveling on a curve or hill.

As the angle between the beam of the antenna and the target increases, the displayed speed decreases. Ideally, an angle of zero (0) degrees is preferable, because the displayed speed is the actual target speed. However, in all uses of police radar, the radar device is always at a slight angle to the target vehicle to avoid collisions.



**Figure 5.2.1**

An angle between the antenna and the target causes the cosine effect

The following table shows the effect that an increasing angle has on a displayed speed.

Actual Speed	Horizontal Angle Degrees										
	0°	1°	3°	5°	10°	15°	20°	30°	45°	60°	90°
	Displayed speed:										
30 mph	30	29	29	29	29	28	28	26	21	15	0
40 mph	40	39	39	39	39	38	37	34	28	20	0
50 mph	50	49	49	49	49	48	46	43	35	25	0
60 mph	60	59	59	59	59	57	56	51	31	30	0
70 mph	70	69	69	69	68	67	65	60	49	35	0
80 mph	80	79	79	79	78	77	75	69	57	40	0

**Table 5.2.1**

Actual and displayed speeds at antenna-to-target angles

Small angles (less than 10°) have little effect on accuracy. As the angle increases, the displayed speed decreases. At 90°, the target speed is 0—grossly incorrect.

### **5.2.2 Fan Interference**

Fan interference is one of the most common forms of interference that you are likely to experience. It is caused when the radar measures the speed of a blower fan that is within the beam path of the radar. If the SI-3L™ is used inside of a building keep in mind that furnace and air conditioner fans can cause interference. To correct this, relocate the radar so it does not display spurious speeds or turn off the fan motor.

### **5.2.3 Electromagnetic Interference (EMI)**

Operating electric motors can produce EMI. EMI from power seats or windshield wipers can also produce spurious target speeds. To correct the interference, simply turn off its source.

### **5.2.4 Feedback Interference**

When the radar beam is directed at computer screens, streetlights, and other electronic devices it can display spurious speeds. Relocate the SI-3L™ to avoid the interference.

### **5.2.5 Multi-Path Beam Cancellation**

If multi-path beam cancellation occurs, the target vehicle speed sporadically blinks and reappears at semi-random intervals. This type of interference occurs when the radar loses track of a target because the target is reflecting two or more signals which are interfering with each other. The SI-3L™ is immune from multi-path cancellation.

### **5.2.6 Radio Frequency Interference (RFI)**

The system can inadvertently process radio energy as Doppler speeds including that from 2-way radios, airport radar, microwave transmission towers, CB radio transmitters, and AM/FM transmission towers. For this type of interference to occur, the SI-3L™ must be operating very close to the radio transmitter.



### **5.2.7 Scanning**

The SI-3L™ is designed to be used while attached to a solid mount position. Moving or “scanning” the antenna past stationary objects can cause the system to detect motion. Obtaining a speed reading from scanning will not happen as long as the antenna is held in one position and is not moved.

### **5.2.8 Environmental Factors: Rain & Snow**

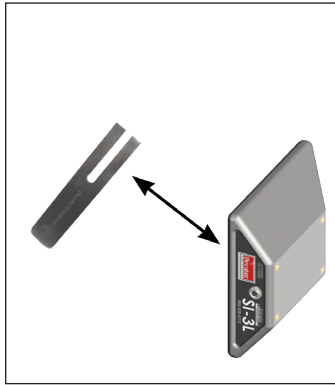
Environmental factors such as rain or snow can reduce the distance at which a target can be detected; however, these factors will not affect accuracy.

## 6. Testing the Device

### 6.1 Tuning Fork Test

You can verify signal processing accuracy by using a tuning fork, which comes with the radar. There is a one minute time window from when the SI-3L™ is first powered on in which you can test the unit using a tuning fork. After one minute the SI-3L™ switches to directional mode and the fork will no longer be read.

To begin the test, tap the tines of the fork on a firm, non-metallic surface. The tuning fork will ring audibly. Place the tuning fork that you tapped with the narrow side facing about 3 inches directly in front of the antenna. Compare the speed in the display window to the speed stamped on the fork. If the difference is within  $\pm 1$  display unit, the SI-3L™ is working properly.



**Figure 6.1**

Place the vibrating tuning fork about 3 inches in front of the antenna

If the device does not display the expected speed, contact Decatur Electronics Customer Service at 888.428.4315 to arrange for service.

- Only tap the tuning fork against hard plastic, wood, and materials that are softer than metal. Repeatedly tapping the tines on hard surfaces, such as metal and concrete, can damage the tines and invalidate the fork for future tests.

## 7. Care, Cleaning, and Storage

- Avoid spilling food, beverages, and other liquids and substances on the radar device
- When you are not using or transporting the device, store it in its original packaging
- To clean use a soft clean cloth which is free of cleaning solutions

## 8. Specifications

### 8.1 Antenna Parameters

#### K-Band

Transmission frequency	24.000 - 24.250 GHz (24.150 GHz nominal)
Beamwidth	6.5° x 5.5° @ -3dB point
Polarization	Linear
Output power (EIRP)	+20 dBm
Power Density	114.3 dBuV/m at 3 metres
Horizontal Sidelobe Suppression	15 dB typical
Vertical Sidelobe Suppression	15 dB typical

### 8.2 Environment

Ambient operating temperatures	-22°F to +158°F (-30°C to +70°C)
Maximum humidity	100% relative humidity (Unit is weather proof, not water proof)

### 8.3 Speed Range Parameters

Speed Display Ranges	Minimum	Maximum
mph option	5	150
km/h option	8	241
fps option	10	300
m/s	3	90

### 8.4 Power Consumption Parameters

Supply voltage range	+9VDC to +24VDC
Nominal Current Draw	150 mA at +12VDC

## **9. Legal Requirements**

### **9.1 RF Exposure Compliance**

The antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. Users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

### **9.2 FCC Statement**

This device complies with FCC part 15 standard. Operation is subject to the following two conditions:

1. This device may not cause interference, and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### **9.3 Industry Canada**

#### **English Statement**

This Category II radiocommunication device complies with Industry Canada Standard RSS-310

#### **French Statement**

Ce dispositif de radiocommunication de catégorie II respecte la norme CNR-310 d'Industrie Canada.

## 10. Frequently Asked Questions (FAQ)

### **Q. *My SI-3L™ has poor range. How can I remedy this?***

- A. Verify that the antenna has no obstructions in front of it. If the unit still has poor range, increase the sensitivity level. If you still have this problem, contact Decatur Electronics.

### **Q. *What if I drop my SI-3L™?***

- A. The unit is extremely durable. Simply power up and perform tuning fork test. If the unit doesn't appear to work properly, contact Decatur Electronics.

## 11. Warranty

### **ONE-YEAR RADAR WARRANTY**

Decatur Electronics, Inc. guarantees the SI-3L™ to be free from defects in workmanship and material and to operate within specifications for a period of one year. During this period, Decatur Electronics will repair or replace, at its option, any component found to be defective, without cost to the owner, providing you return the part to the factory or to a Decatur authorized warranty service center.

The full warranty on parts and workmanship does not include normal wear and tear, crushing, dropping, fire, impact, immersion, misuse, vandalism, or damage from attempted repair or modifications by unauthorized service agents or improper voltage.

For repairs, simply return the SI-3L™ directly to the factory or to a Decatur authorized service center.

Refer to the instructions in the Service Return Procedure.

## 12. Service Return Procedure

If you have questions, want a quick problem diagnosis, or need to return your unit to the factory:

- Call Decatur Electronics and ask to speak with a Customer Service Representative.  
Phone: 888.428.4315
- Ask for a Return Authorization Number.
- Based on the information that you provide, the Customer Service Representative will issue you a return authorization (RA) number. Write the RA number on your note and shipping label.
- If so directed, include a note describing the problem and/or the incident that resulted in the problem. Failure to do so can delay the return of your system.
- Return the system to:  
Decatur Electronics, Inc.  
3433 East Wood Street  
Phoenix, AZ, 85040, USA  
RA # XXXXXX

Decatur Electronics does not accept items shipped COD. The customer is responsible for all shipping charges to the Decatur service location.

On warranty items Decatur Electronics will pay the freight (up to \$10 US) for shipping the system from the repair facility to the customer. We will charge the customer for any shipping charges above the initial \$10. If you want to ship your package express or next day air we will send you an invoice for these freight charges.

After your product has been received, our technicians will investigate the problem. If your SI-3L™ is out of warranty, you will be sent an estimate of cost, prior to any repair work being performed. After receiving the estimate, you can choose from the following options:

1. Approve the estimate and proceed with repair.
2. Decline the estimate, and pay an estimate fee and return shipping.
3. Decline the estimate and allow Decatur to recycle the unit, all fees are waived.

If we do not hear back from within 30 days, then we will proceed with option 3.

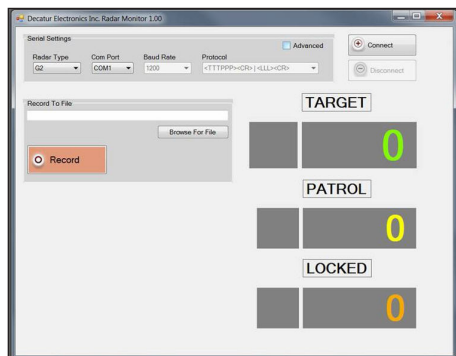
If your product is under warranty it will automatically be repaired and sent back to you.

### 13. How to Order Additional Products

You can order upgrades and additional products for the SI-3L™ (when available). To see product descriptions or order products, see the Decatur Electronics Web site at [www.DecaturElectronics.com](http://www.DecaturElectronics.com) or call the sales office at 888.428.4315.

#### ***Radar Monitor***

The optional Radar Monitor program is designed to display speed information on a computer and record that information to a text file for analysis. The program has been design to work specifically with the SI-3L™. For more information on the Radar Monitor contact the sales offices at Decatur Electronics.



**Figure 13**  
Radar Monitor Screen

## 14. User Notes











[www.DecaturElectronics.com](http://www.DecaturElectronics.com)

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