

# *SCI Tester Overview*

## ***Introduction***

The SCI Tester is tester application that implements most of the Roomba SCI commands in a simple interface. Additionally SCI Tester works with Roo232, RooStick, and RooTooth so that you don't have to install a different software package for each product. SCI Tester is a Visual Basic 6 application and the source code is also provided and you can use it as sample code to get started on your own projects. Be advised that this software and its source code is provided "as is" and we do not guarantee nor warranty the SCI Tester in any manner.

### **1. Setup**

Both the SCI Tester and its Visual Basic 6 source code are available for download on the Roomba DevTools website. SCI Tester is installed in the following path: Start→Programs→RoboDynamics→SCI Tester

#### **RooTooth Instructions**

1. Install SCI Tester on a Windows PC.
2. Plug in a Bluetooth adapter on your PC (if needed)
3. Plug in RooTooth into the Roomba port.
4. Run a Bluetooth discovery on your PC - you should see RooTooth.
5. Pair the PC and RooTooth (use password "default")
6. Take note of the outgoing virtual Comm. Port created under Serial Port Profile.
7. Launch SCI Tester.
8. Select RooTooth in the File menu.
9. Enter the Comm. Port in the Comm. Panel
10. Click the Connect button - you should now be connected to RooTooth
11. Click the ON button and Roomba should come alive.
12. To send commands you must first click Initialize Safe Mode.
13. Refer to [Roomba SCI Documentation](#) for more info.

### RooStick Instructions

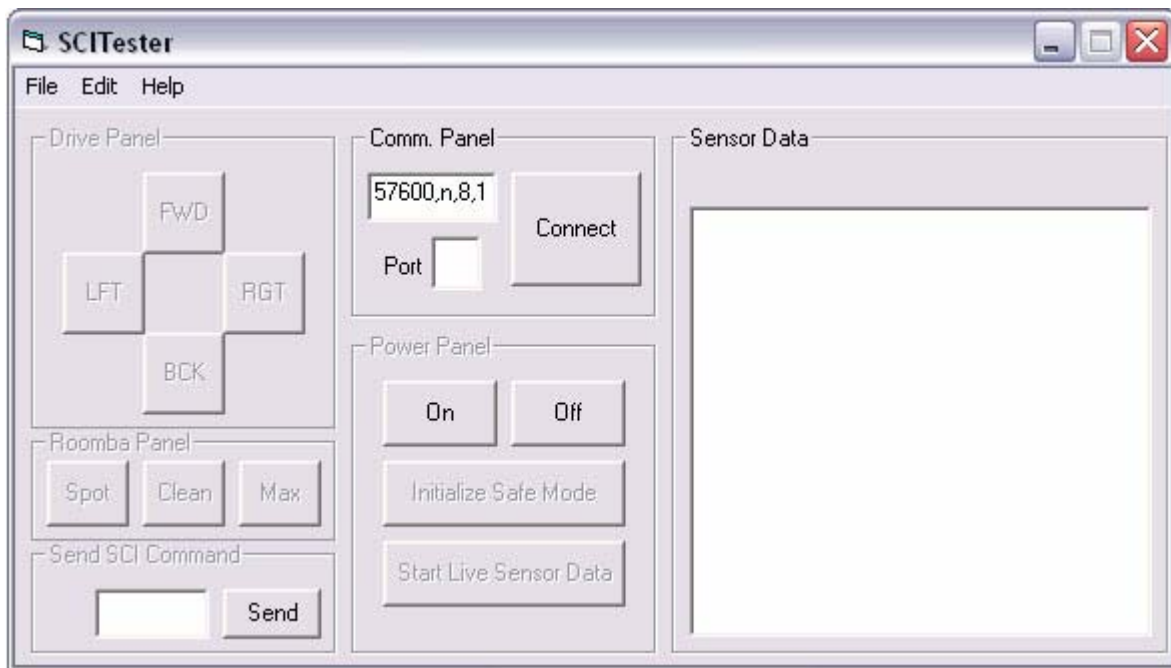
1. Install the CP2103 drivers from Silicon Labs first.
2. Install SCI Tester on your PC.
3. Plug in RooStick to your PC and use a male-to-male cable to connect to Roomba.
4. Take note of the Comm. Port created on your PC when RooStick is plugged in.
5. Launch SCI Tester and choose RooStick from the File menu.
6. Enter the port number in the Comm Panel.
7. Click the Connect button and you should be connected to Roomba
8. Click the ON button and Roomba should come alive.
9. To send commands you must first click Initialize Safe Mode. Now Roomba is ready to accept your commands.
10. Refer to Roomba SCI Documentation for more info.

### Roo232 Instructions

1. Install SCI Tester on your PC.
2. Plug in Roo232 using a *straight* serial cable.
3. Use male to male mini-din 7pin cable to connect Roo232 to Roomba.
4. Take note of the Comm. Port you're connecting on.
5. Launch SCI Tester and choose RooStick from the File menu.
6. Click the Connect button and you should be connected to Roomba
7. Click the ON button and Roomba should come alive.
8. To send commands you must first click Initialize Safe Mode. Now Roomba is ready to accept your commands.
9. Refer to Roomba SCI Documentation for more info.

## 2. Interface & Operation

RoombaDevTools highly recommends reading the SCI Documentation before use of the SCI Tester. Before Roombas are able to accept commands, they must first be “initialized to safe mode”. Once it is initialized, then Roomba is able to accept other commands.



**Figure 1.** The SCI Tester interface

The Comm. Panel is for connecting to Roomba. It requires a port number in order to connect to Roomba. The Power Panel allows users to initialize Roomba and monitor its sensor data which is outputted at the right. The Drive Panel allows users to navigate Roomba using four basic motions. The Roomba Panel contains three buttons corresponding to the three cleaning buttons on Roomba. Lastly the Send SCI Command panel allows you to execute any of the three digit commands as described in the SCI Documentation.

**Note:** The send command is only able to accept one byte arguments. Thus it can send commands such as Spot (134) and Clean (135) but not commands such as Play (141 + song number) which require a space character. Executing such an argument in the Send box will terminate the program.

### 3. Troubleshooting FAQ

**Q. I get the error “invalid port number” from the program. Why?**

- A. Make sure that you have the correct port number entered into the Comm. Panel. Note that we are using the *outgoing* port and not the *incoming* port.

**Q. After I turn on Roomba using the ON button in the Power Panel, it does not respond to other commands. What is going on?**

- A. If you are turning Roomba on using the Power Panel of the SCI Tester, Roomba needs to be reinitialized. Just click the Initialize Safe Mode button once more and the other buttons should respond.

**Q. What commands can I send Roomba?**

- A. The Roomba SCI Interface includes basic functionality which makes it ideal as a robotics platform. The documentation explains the already available SCI commands that can be sent to Roomba - [http://www.roombadevtools.com/productcart/pc/docs/docs\\_roombasci.pdf](http://www.roombadevtools.com/productcart/pc/docs/docs_roombasci.pdf). We highly recommend you read the SCI documentation.

**Q. Why doesn't Roomba respond to any of my commands?**

- A. Make sure your Roomba has the SCI (Serial Command Interface). Roombas manufactured before October 24<sup>th</sup>, 2005 do not come with the built-in SCI. To determine when your Roomba was manufactured, refer to the bar code underneath the battery of your Roomba. The following page shows how - [http://www.roombadevtools.com/productcart/pc/content\\_docs\\_upgrade.asp](http://www.roombadevtools.com/productcart/pc/content_docs_upgrade.asp)

**Q. Where can I find existing programs that allow me to interact with Roomba?**

- A. You can often find programs that people have already written under the software section of our webpage - <http://www.RoombaDevTools.com>. In addition, there are links to programs that other people have written in our Community Projects section. Be advised that the software and source code is provided "as is" and we do not guarantee nor warranty the software below in any manner. As such, any Telnet or similar type programs will work on any platform of your choosing. For more information on how to communicate with Roomba, please download the Roomba SCI Documentation.