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## **SSES Shutter Controller**

### **User's Manual**

**Version 3.1**

**Sciencetech Inc.**

**November 2015**

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## 1. SSES Shutter

The SSES shutter controller is shown below:



There are three connectors as shown below:





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The two pin microphone connector is for the shutter.

The 5 pin mode connector is to be connected to the supplied power adaptor. This controller requires a +12/-12/5V power supply; contact Sciencetech for a replacement if needed. **WARNING:** A +15/-15/5V supply will NOT work correctly and could damage both the shutter and the controller.

The DB9 connector connects the controller to a PC through the serial port.

The green LED light will turn on to indicate that the shutter has been closed.

The Switch can activate the shutter to be Open (Off) or Closed (On) or can be positioned in the Middle to allow the computer control.

## 2. Software

### Installation

1. In the *SciShutter Install* folder, double click the file *SciInstall.exe*

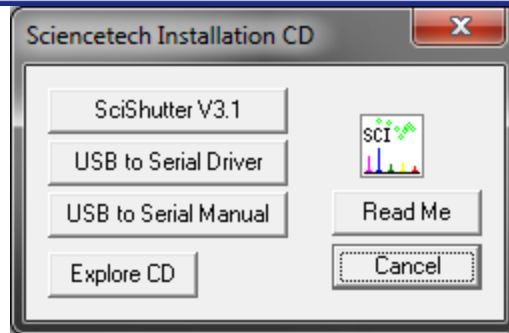
Driver	11/6/2015 11:20 AM	File folder	
Installation	11/6/2015 11:20 AM	File folder	
Autorun.inf	5/16/2001 3:25 PM	Setup Information	1 KB
EditConfig.dll	9/27/2005 3:54 PM	Application extens...	84 KB
MyShell.dll	10/3/2005 1:31 PM	Application extens...	72 KB
Readme.txt	8/13/2014 7:26 PM	Text Document	1 KB
SciInstall.exe	10/3/2005 3:17 PM	Application	44 KB
SciInstall.lis	8/13/2014 7:27 PM	LIS File	1 KB

2. The window seen below should appear. Click SciShutter V3.1.

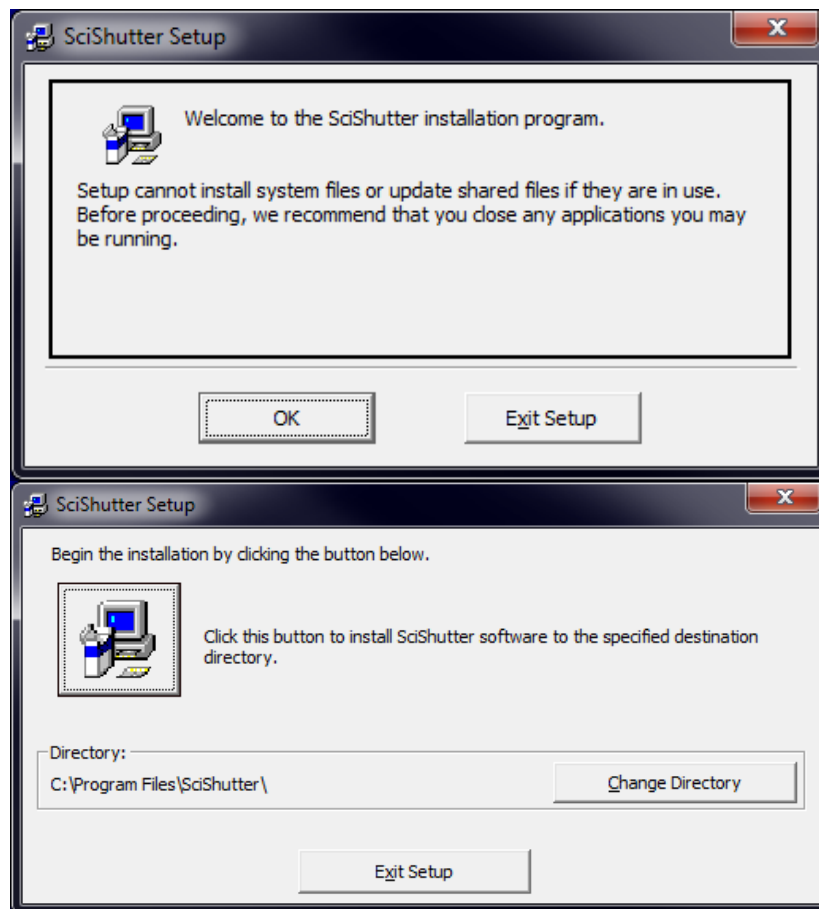
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3. Follow the onscreen instructions and pop-up windows seen below.

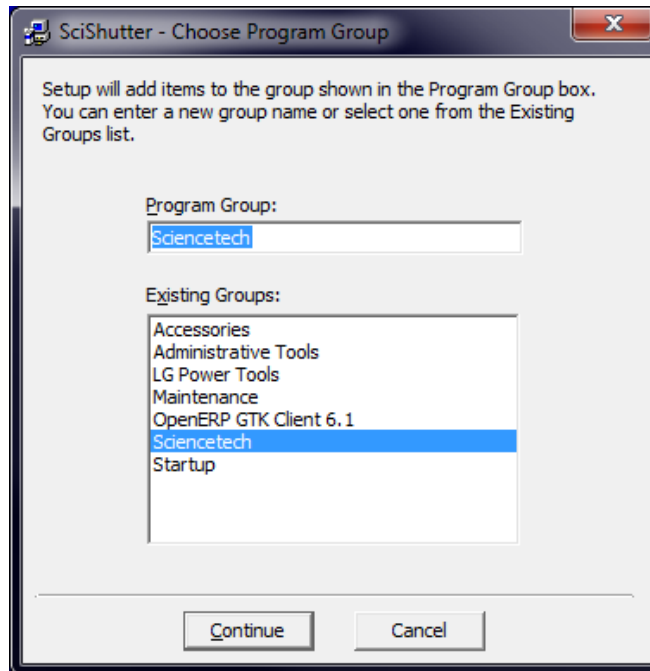


**\*Click the computer icon to begin the installation.**

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**SciShutter is now installed.**

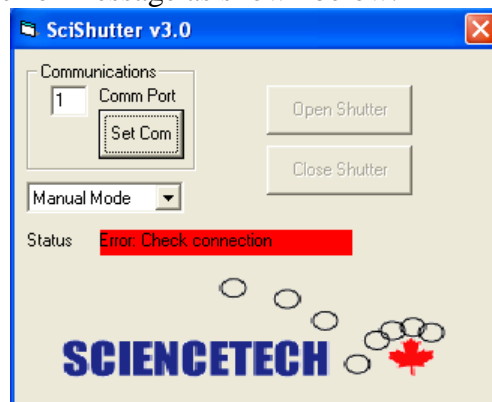
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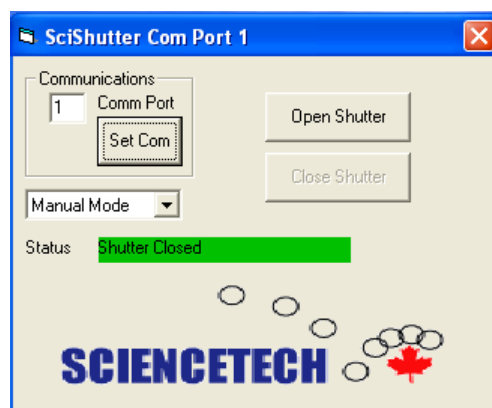
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### 3. Operation

Be sure to set your shutter controller's power switch to the middle position for *Remote* operation. When the program is launched, it starts in Manual Mode and automatically tries to open COM port 1 and communicate with the shutter controller. If COM1 is unavailable, in use, or if the shutter controller is connected to a different COM port, Scishutter will update its *Status* bar with a red colour and an error message as shown below.



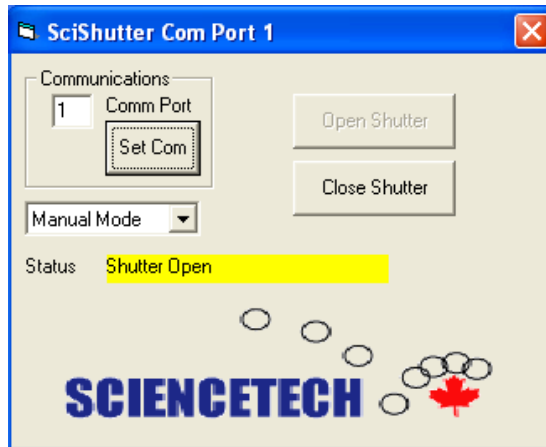
Type the appropriate COM port number in the *Comm Port* Textbox and then click the *Set Com* Button to set the proper communications port. Once communication has been established with the controller, the shutter will close and display a green success message in the *Status* bar as shown below



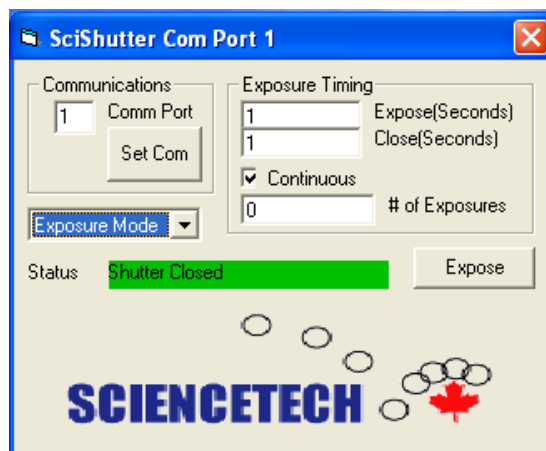
While the shutter is closed, you have the option of opening it at any time by pressing the *Open Shutter* button. Once opened, the *Close Shutter* button will become active while the *Open*

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Shutter button will deactivate. Also, the Status bar will turn yellow and display a success message as shown below.



If you select "Exposure Mode" from the dropdown box the program will CLOSE the shutter and load up the defaults for Automatic opening and closing of the shutter as shown in the picture below.



Set the Exposure Time in the "Expose(Seconds)" box and set the Close time in the "Close(Seconds)" box. Note that the minimum Expose and Close times is 1 second and the times can only be incremented in 1 second intervals. Next check the Continuous checkbox if you want the shutter to loop indefinitely, or uncheck it if you want to take a certain number of exposures.

In continuous Exposure mode, the # of Exposures field will always be 0 and the shutter will loop exposures indefinitely. In non-continuous mode you can set the desired number of exposures in the "# of Exposures" field.

Once you have set all the desired Exposure settings, click the "Expose" button to begin your exposures. Once the Exposing has completed, the Status bar will say "Exposure Complete".



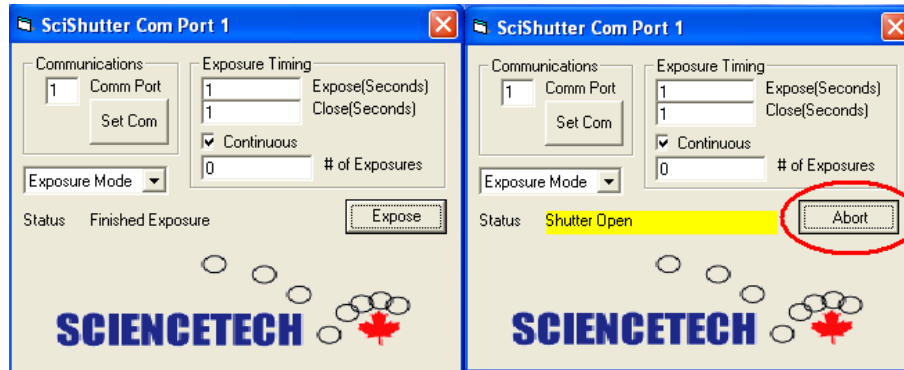
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As pictured below. Alternatively you can stop the exposure at any time by clicking the "Abort"  
button as pictured below.



To exit Scishutter simply click the X in the top right corner of the window.



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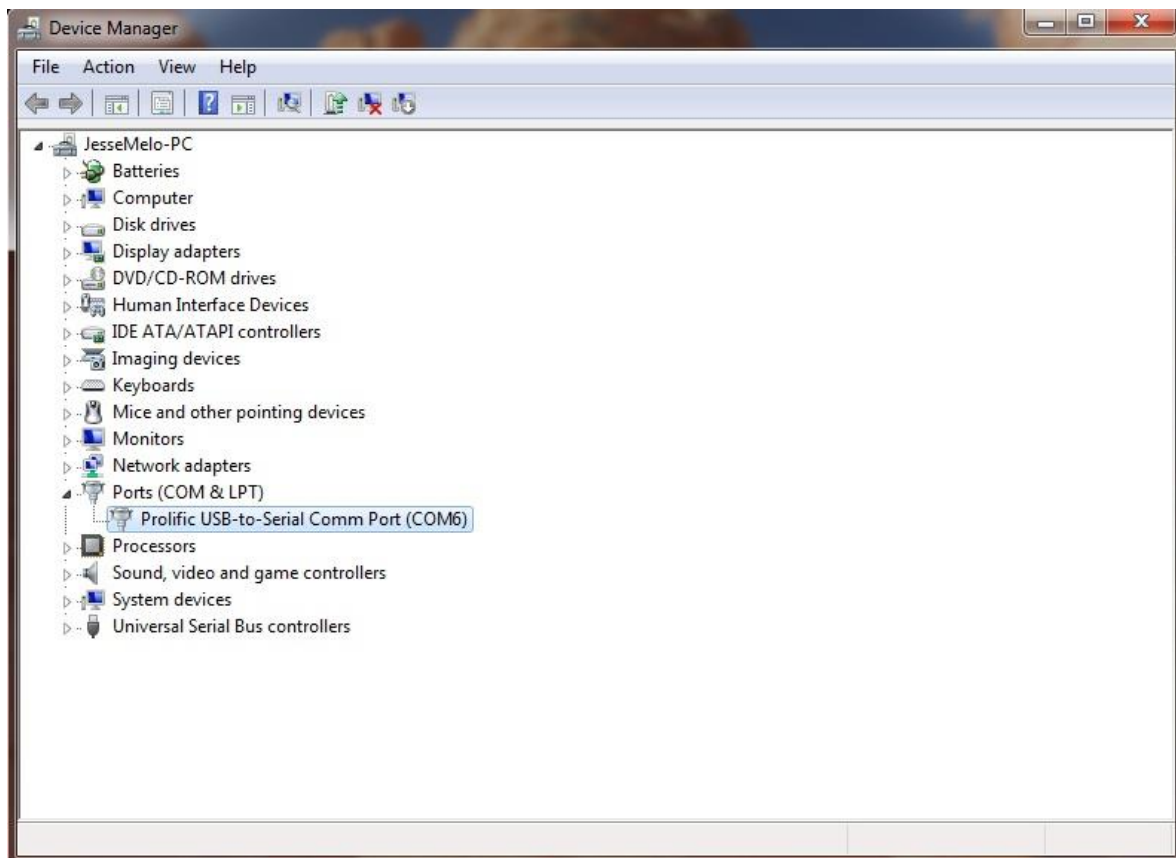
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## 4. Trouble-Shooting Guide

**Don't know what the COM Port number is:**

1. Open the Device Manager (in Win 7/Vista type *Device Manager* in the search box on the start menu. In Win XP right-click *My Computer* and select *Properties* then go to the *Hardware* tab and click the *Device Manager* button).
2. Click the arrow beside *Ports (COM and LPT)* to see a list of installed COM ports as shown below.



3. Try any of the ports listed, if none work, then recheck the cable connections and also ensure that the switch on the controller is set in the middle position to *Remote*



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**The shutter is working manually, but will not close with the software.**

1. Close the shutter software
2. Turn the shutter off by pushing the switch to the bottom position (Open)
3. Unplug the serial cable from the controller
4. Unplug the power cable from the controller
5. Push the switch all the way to the top (Close) and then back to the bottom position (Open)
6. Plug in the power cable to the controller
7. Plug in the serial cable to the controller
8. Plug in the serial cable to the computer if it is not already
9. Make sure all connections are securely in place
10. Push the switch on the controller to the middle positions (Remote)
11. Start the SciShutter software
12. Choose the proper COM port and push the *Set Comm* button
13. Try again to close the shutter
14. If problem persists contact Sciencetech for further troubleshooting or possible replacement of shutter controller



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## 5. Custom Software Applications (Labview, etc)

Scishutter does not support integration into custom applications. However, one can use the functions from SerialComm.dll or any other serial communications protocol in their custom applications to send the appropriate commands via serial port to control the shutter. To send data to the serial port using SerialComm.dll, create a byte array and use the method:

setOutputByteArray(Byte[] outputBytes, long numOfBytes)

To receive a byte array from the serial port you may use the InputArray property.

The following table is a list of bytes (represented by its decimal number) to send to the controller to perform certain commands. The algorithms to open and close the shutter follow the table.

COMMAND	BYTES SENT	BYTES RECEIVED
Turn Off Relay 1	254 , 0	N/A
Turn On Relay 1	254 , 1	N/A
Turn Off Relay 2	254 , 2	N/A
Turn On Relay 2	254 , 3	N/A
Get Status of Relay 1	254 , 4	0 = off , 1 = on
Get Status of Relay 2	254 , 5	0 = off , 1 = on
Get Status of Both Relays	254 , 7	0 = Both off , 1 = Relay 1 on & Relay 2 off , 2 = Relay 2 on & Relay 1 off , 3 = Both off

### Closing the shutter:

Turn Relay 1 On

Turn Relay 2 On

Wait for ½ - 1 second

Turn Relay 2 off (IMPORTANT! Else the solenoid that operates the shutter will overheat)

Wait for at least 50 ms

Check both relays to ensure Relay 1 is on and Relay 2 is off

### Opening the shutter:

Turn Relay 1 Off

Wait for at least 50 ms

Check to ensure that Relay 1 is off