



BlueDAQ for Windows User Guide



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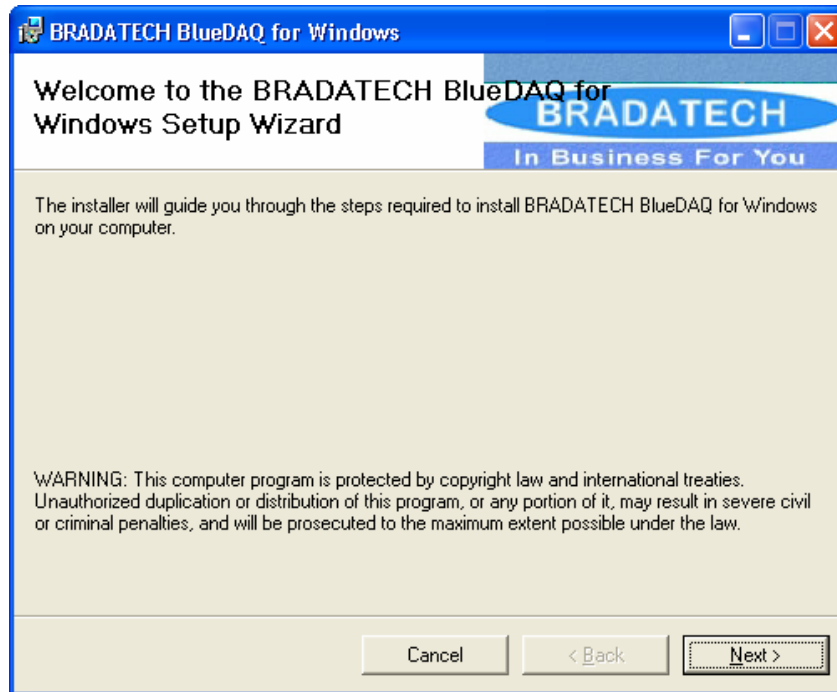
Hardware Specifications

	BlueBOX / SerialBOX (5Volt Box)	BlueBOX / SerialBOX (10Volt Box)
Sample Resolution	10-bit	10-bit
Accuracy	±4.9mV	±9.8mV
Inputs	4 Analog Inputs (0-5V) 2 Digital Inputs (0 or 5V)	4 Analog Inputs (0-10V) 2 Digital Inputs (0 or 5V)
Sample Rate	240 samples/sec (single Channel mode) 60 samples/sec (4 Channel mode)	240 samples/sec (single Channel mode) 60 samples/sec (4 Channel mode)
Interface	Bluetooth (BlueBOX) RS-232 (SerialBOX)	Bluetooth (BlueBOX) RS-232 (SerialBOX)
Range	100 M (300 ft) BlueBOX N/A (SerialBOX)	100 M (300 ft) BlueBOX N/A (SerialBOX)
Analog Input Impedance	>300 kΩ	>200 kΩ
Power Supply	9-15VDC	9-15VDC
Consumption	50mA (BlueBOX) 10mA (SerialBOX)	50mA (BlueBOX) 10mA (SerialBOX)
9V Battery Duration	12-15 hrs continuous use (BlueBOX) 50-60 hrs continuous use (SerialBOX)	12-15 hrs continuous use (BlueBOX) 50-60 hrs continuous use (SerialBOX)
Size	77x66x28mm (BlueBOX) 80x66x28mm (SerialBOX)	77x66x28mm (BlueBOX) 80x66x28mm (SerialBOX)

	BlueBOX 2 / SerialBOX 2 (5Volt Box)	BlueBOX 2 / SerialBOX 2 (10Volt Box)
Sample Resolution	12-bit	12-bit
Accuracy	±1.2mV	±2.4mV
Inputs	4 Analog Inputs (0-5V) 1 Digital Input (0 or 5V)	4 Analog Inputs (0-10V) 1 Digital Input (0 or 5V)
Sample Rate	240 samples/sec (single Channel mode) 60 samples/sec (4 Channel mode)	240 samples/sec (single Channel mode) 60 samples/sec (4 Channel mode)
Interface	Bluetooth (BlueBOX2) RS-232 (SerialBOX2)	Bluetooth (BlueBOX2) RS-232 (SerialBOX2)
Range	100 M (300 ft) BlueBOX2 N/A (SerialBOX2)	100 M (300 ft) BlueBOX2 N/A (SerialBOX2)
Analog Input Impedance	>300 kΩ	>200 kΩ
Power Supply	9-15VDC	9-15VDC
Consumption	50mA (BlueBOX2) 10mA (SerialBOX2)	50mA (BlueBOX2) 10mA (SerialBOX2)
9V Battery Duration	12-15 hrs continuous use (BlueBOX2) 50-60 hrs continuous use (SerialBOX2)	12-15 hrs continuous use (BlueBOX2) 50-60 hrs continuous use (SerialBOX2)
Size	77x66x28mm (BlueBOX2) 80x66x28mm (SerialBOX2)	77x66x28mm (BlueBOX2) 80x66x28mm (SerialBOX2)

Installing Software

Launch the **Setup.exe** program on your Windows PC to start the BlueDAQ installation. Follow the onscreen instructions.



Using BlueDAQ

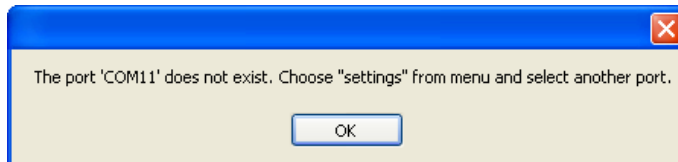
1. Connect your Windows PC with the SerialBOX using a serial cable and apply power to the 9-15VDC pin and connect the Gnd pin. If you are using our BlueBOX and your Windows PC has Bluetooth capabilities, simply apply power to the 9-15VDC pin and connect the Gnd pin.



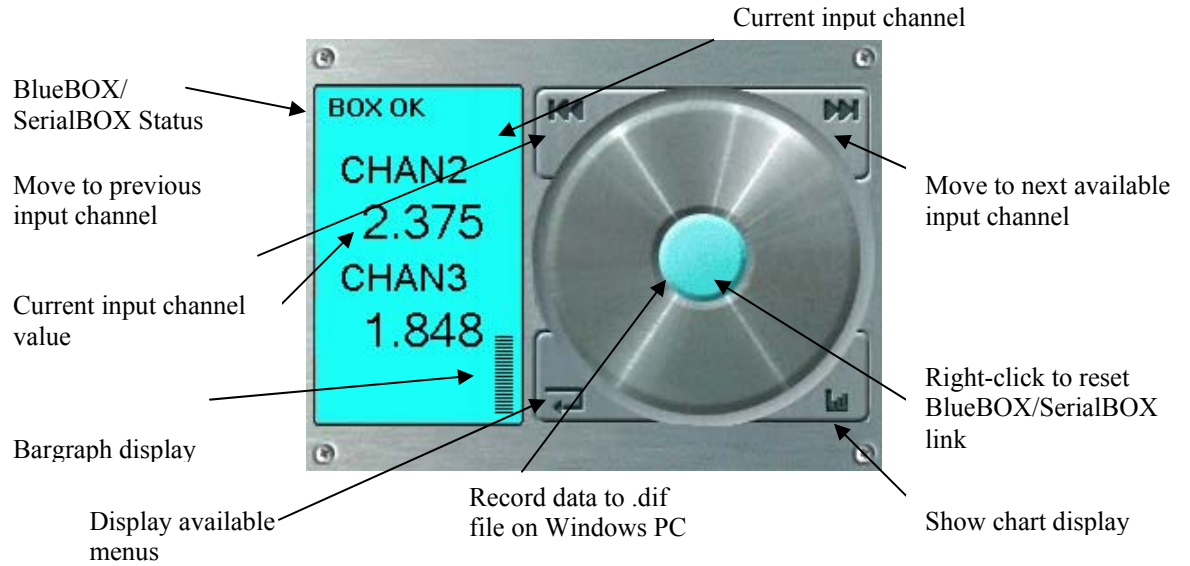
2. {Click} **BlueDAQ** to launch the BlueDAQ software.
--- The faceplate screen appears. ---




Proceed to the next section *Configuring your BlueDAQ for Windows PC Software* if you receive the following message.



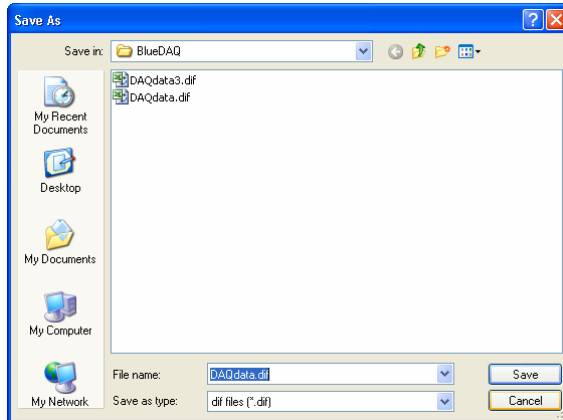
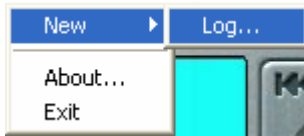
3. The faceplate controls are described below.



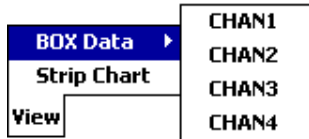
4. {Click}  to display the following menu items.

File Edit View


The File menu provides the ability to modify the current log file name.

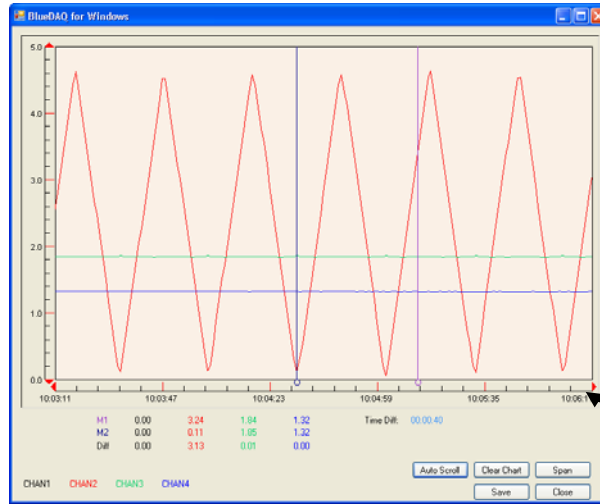


The View menu provides the ability to select available input channels.



Accessing Charts

1. {Click}  on the main faceplate screen.
 --- The chart screen appears. ---



Right-click chart to display menus for modifying Y-axis span, auto scale, show/hide axis and markers

M1	0.00	2.38	1.85	1.32	Time Diff: 00:01:06
M2	0.00	2.38	1.85	1.32	
Diff	0.00	0.00	0.00	0.00	

CHAN1 CHAN2 CHAN3 CHAN4

Buttons: No Scroll, Clear Chart, Span, Save, Close


Click labels to show/hide them on the chart
 Right-click labels to select which Y-axis to use

Modify chart time span
 Toggle between live and history (scrollable) mode

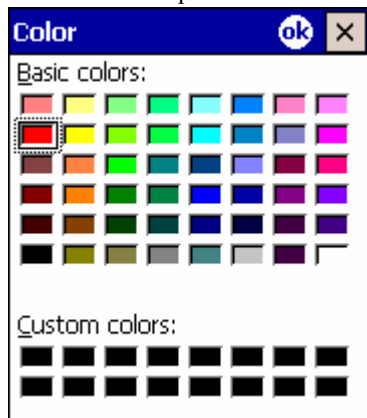


Chart data is discarded when BlueDAQ closes. If you would like to have sampled data stored to a .dif file, refer to the *Configuring your BlueDAQ Software* section which explains the logging process.

Configuring your BlueDAQ for Windows Software

1. {Click}  on the main faceplate screen to display the menus.
 --- The following menu items are available to the user. ---
 File Edit View
2. {Click} **Edit**, then **Settings...**
 --- The settings screen appears. ---

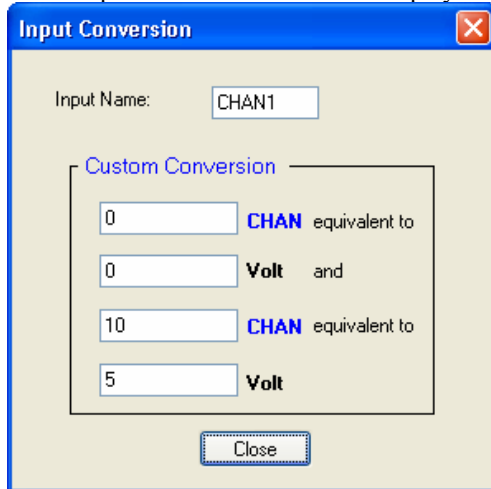
3. {Click} the colour you would like to use when charting the input channel.
 --- The colour palette is closed. ---



4. {Select} the input channel type by {clicking} the appropriate dropdown list beside the channel.

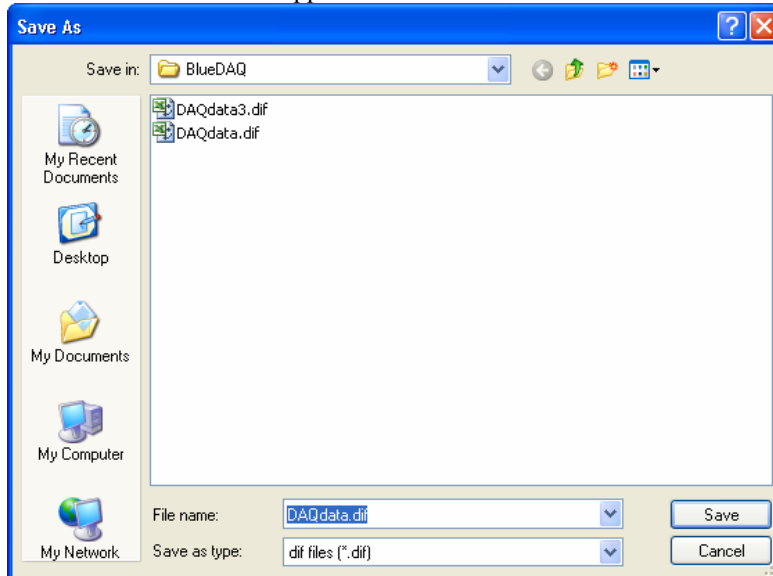


5. {Select} **Custom** if you require a custom conversion for the channel.
 --- The *input conversion window* is displayed. ---



6. {Enter} the appropriate information for converting the raw input value to the required units and {click} **Close**

7. To modify the log filename for Windows PC data logging, {click} **Set**.
 --- The *Save as..* window appears. ---




Fill-in the required filename information and {click} **Save** to save or **Cancel** to discard the changes.

8. The Rate: S/Sec setting will allow adjustments to the number of samples/second logged to the .dif file. The BlueBOX/SerialBOX devices have a maximum sample rate of 240 samples/second total. This means enabling one input provides a maximum sample rate of 240 samples/second and enabling all four inputs provides a maximum sample rate of 60 samples/second for each channel. This is due to the 4800 baud rate of the BlueBOX/SerialBOX. The sample rate can also be reduced to minimize the space used by the .dif file if high sample rates are not needed and you wish to log data for multiple hours.



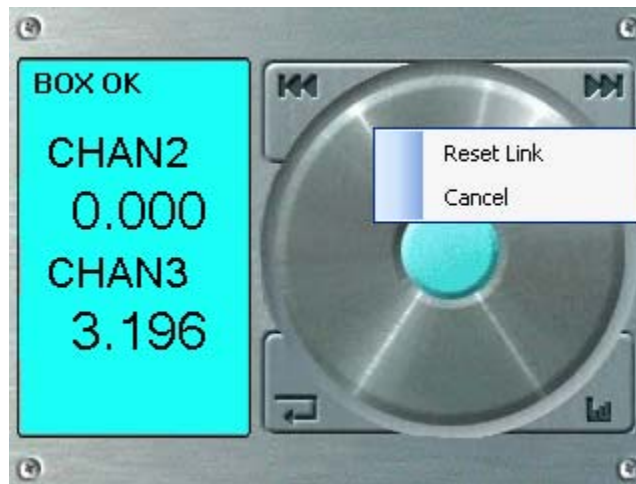
The sample rate can be adjusted to 1, 5, 10, 15, 20, 30, 60, 120 and 240 samples/second. We only allow sample rates which are multiples of 5 and are factors of 240 (divide evenly into 240) to avoid gaps in the logs.


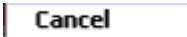
9. {Click}  to save the BlueDAQ software settings and close the dialog window.

Resetting the Communication Link


You can reset communications with your BlueBOX/SerialBOX using BlueDAQ for Windows PC if the device no longer responds with the software.

{Right-click} on the main faceplate to display the hardware control menu.



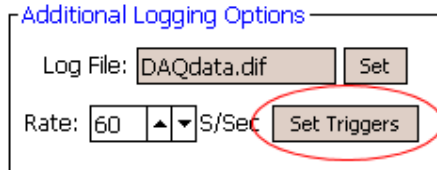
1. {Select}  to reset the BlueBOX/SerialBOX connection if it is no longer active.
2. {Select}  to cancel the control menu.

Using Triggers with your BlueDAQ Software

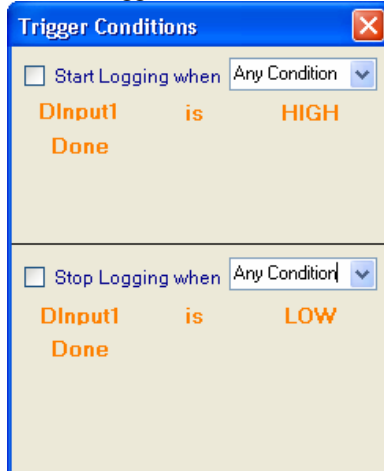
1. {Click}  on the main faceplate screen to display the menus.
--- The following menu items are available to the user. ---



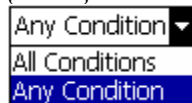
2. {Click} **Edit**, then **Settings...**
--- The settings screen appears. ---
3. {Click} **Set Triggers** in the additional logging options section.



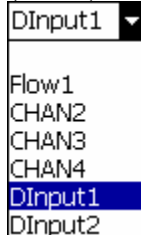
--- The Trigger Conditions screen appears. ---



4. {Click} **Start Logging** and ensure the checkmark appears to enable the start logging trigger. To disable the trigger, {clear} the checkbox.
5. {Select} the desired field condition from the list.



6. {Fill-in} the first line of the condition by selecting the input channel.





The four (4) input channels are available for setting the start and/or stop triggers. **Two (2) digital input channels are available on the BlueBOX/SerialBOX 10-bit units and one (1) digital input channel on the BlueBOX2/SerialBOX2 12-bit units.** These are designed as on/off state inputs which OFF being defined as 0 Volts and ON being defined as 5V (for the 5V Box) and 10V (for the 10V Box).

7. {Select} the desired state for the input trigger.

A screenshot of a dropdown menu with three options: 'HIGH', 'HIGH', and 'LOW'. The top 'HIGH' option is highlighted in blue, indicating it is the selected state for the input trigger.

8. If an analog channel is selected as an input for the trigger, a list of available operators is presented.

A screenshot of a dropdown menu with five options: '>', '>=', '<', and '<='. The '>' option is highlighted in blue, indicating it is the selected operator.

9. {Select} the appropriate operator and {fill-in} the desired value in the textbox to the right.

A screenshot of a text input field containing the numerical value '125.00'.



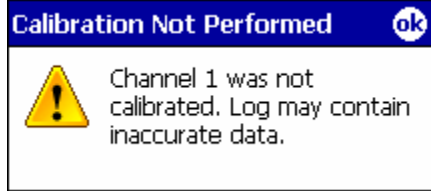
To add additional lines, {click} the **Done** keyword and select an input from the displayed list. Up to four (4) input triggers can be specified for each of the start and stop triggers. To use less than the allowed four (4) input triggers, {Select} the “Blank” input so that the **Done** keyword is displayed and the remaining trigger lines are cleared.



Triggers are generally used to prevent filling the log file with unimportant or “garbage” data. By setting the appropriate start and stop triggers, your log file will contain only valid data based on your data collection needs.

Calibrating your BlueBOX/SerialBOX Device using BlueDAQ

You may receive the following message




if you attempt to log data without performing the input channel calibration procedure first. Follow the instructions below in order to calibrate the BlueBOX/SerialBOX input channels using our included calibration cable.



Use our included calibration cable only for performing the calibration sequence described below. Do not use it to connect power supplies or input signals to the BlueBOX/SerialBOX.

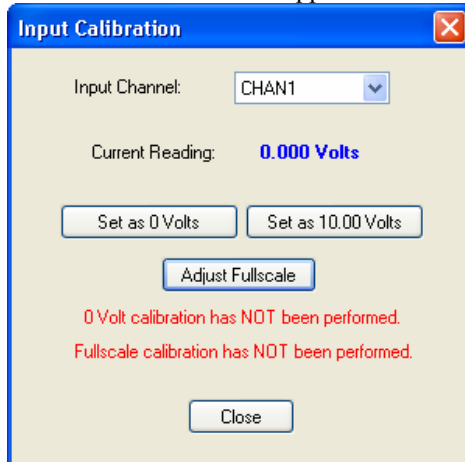
1. {Connect} the included calibration cable to the BlueBOX/SerialBOX device as shown below.
--- BlueBOX connection shown, SerialBOX will connect the same way ---



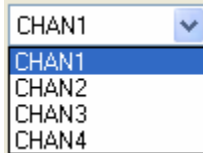
2. {Connect} a fresh 9 Volt battery to the calibration cable's battery connector.
3. {Launch} the BlueDAQ software and ensure it connects successfully to your BlueBOX/SerialBOX device.
4. {Click}  on the main faceplate screen to display the menus.
--- The following menu items are available to the user. ---



5. {Click} **Edit**, then **Calibrate...**
 --- The calibration screen appears. ---

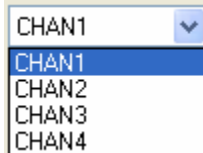


6. {Select} the input channel you wish to perform the zero calibration from the drop down list.

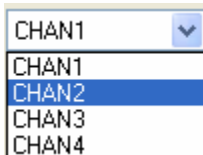


7. {Connect} the **BLACK** wire from the calibration cable to the input selected above.
 8. {Click} **Set as 0 Volts**
 9. {Repeat} steps 5 through 7 until all inputs' zero values have been set.

10. {Select} the input channel you wish to perform the full-scale calibration from the drop down list.



11. {Connect} the **RED** wire from the calibration cable to the input selected above.
 12. {Measure} the input voltage (where **RED** wire is connected) with a voltmeter.
 13. {Click} **Adjust Fullscale** and {enter} the voltage measured in step 12.
 14. {Click} **OK** to save your full-scale measurement.
 15. {Click} **Set as 9.00 Volts**
 16. {Select} the next input channel you wish to perform the full-scale calibration from the drop down list.



17. {Click} **Set as 9.00 Volts**
 18. {Repeat} steps 16 and 17 until all inputs' full-scale values have been calibrated.
 19. {Click} **Close** to save your calibration settings.
 20. {Close} the BlueDAQ software and disconnect the calibration cable.
 21. Your BlueBOX/SerialBOX is ready for field use.



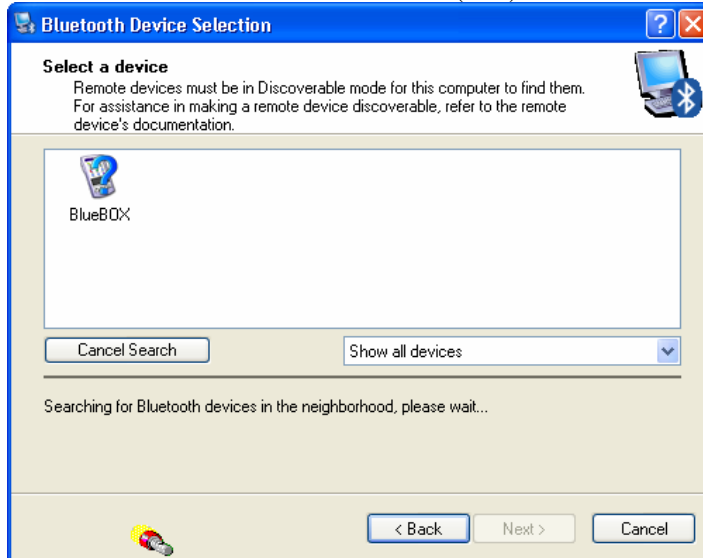
The **Set as 9.00 Volts** button text may be different if your full-scale value is not exactly 9 volts. The full-scale value will be set to 5 volts by default if you have purchased our 5V range box. The measurement of the voltage in step 12 above needs to be performed only for the first input. Subsequent inputs will use the same full-scale value for calibration.



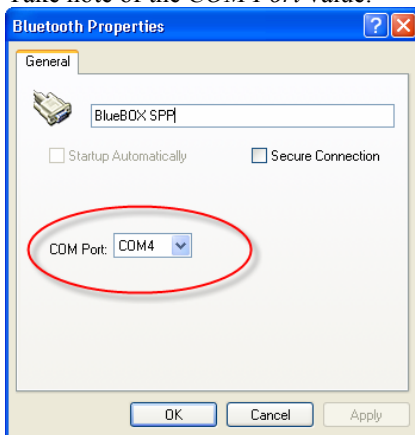
Calibration data is saved in the `BluDaqPrefs.xml` file located on your Windows PC's *Program Files\BlueDAQ* directory. You may want to copy this file in another folder for safe keeping once you have performed the calibration sequence above in case you need to someday re-install your BlueDAQ software.

Using the BlueBOX with your BlueDAQ Software

1. {Open} the *My Bluetooth Places* on your Windows PC. {Launch} the Bluetooth Setup Wizard and browse for a Bluetooth Serial Device (SPP) called *BlueBOX*.

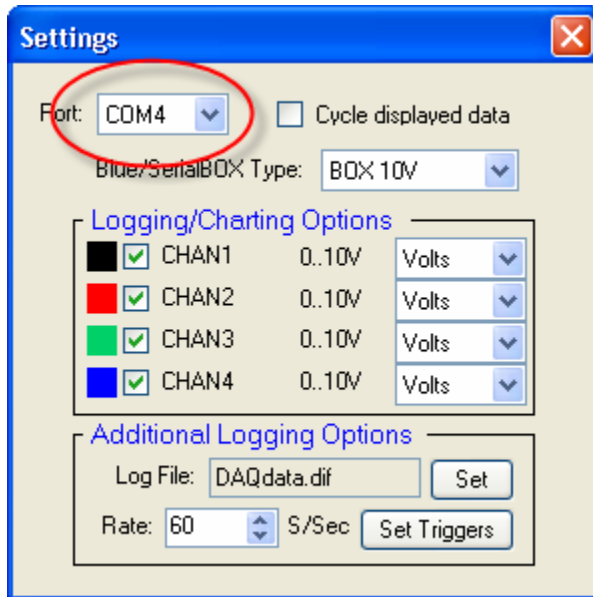


2. Take note of the *COM Port* value.



3. {Launch} BlueDAQ and call-up the *Settings* window.

- {Select} the port number list and set the port to the same as the *COM Port* value above.



- {Click}  to save changes.