

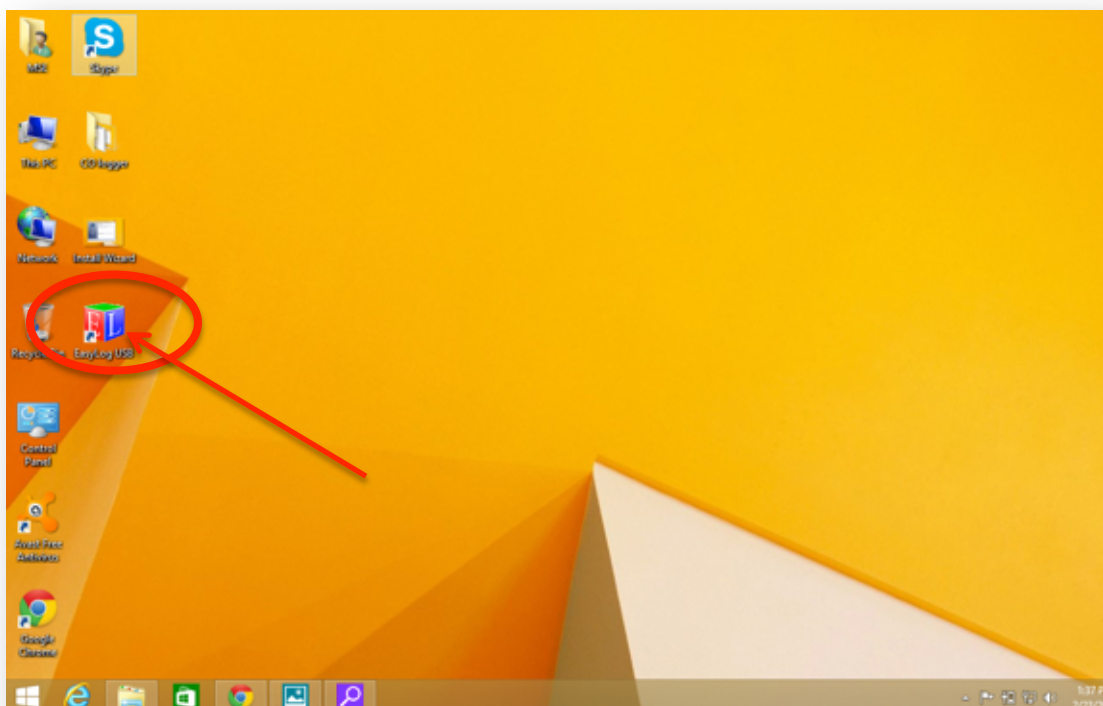
How to log data with the LASCAR EL-WIN-USB CO data logger

NOTE: Please read the complete CO data logger equipment protocol (found at the end of this document) before using the CO data logger.

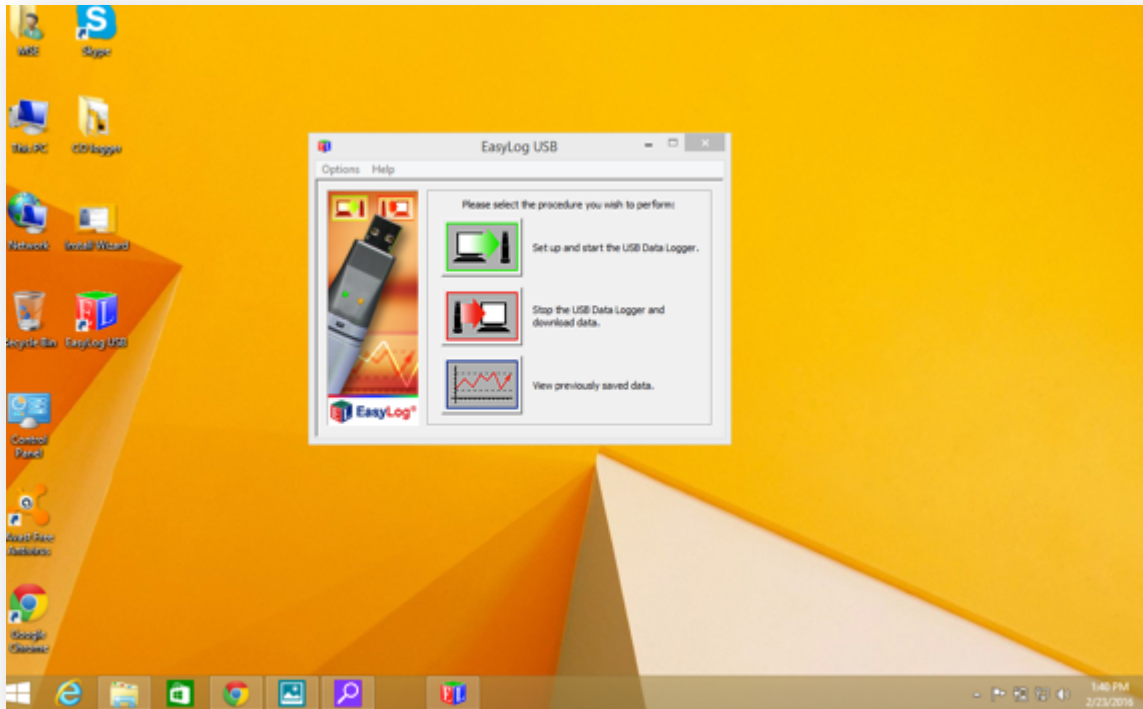
1. Use the software installation disc that came in the logger box to install the logger software *or* download and install the “EL-WIN-USB Windows Control Software” at <http://www.lascarelectronics.com/data-logger/easylogger-software.php>



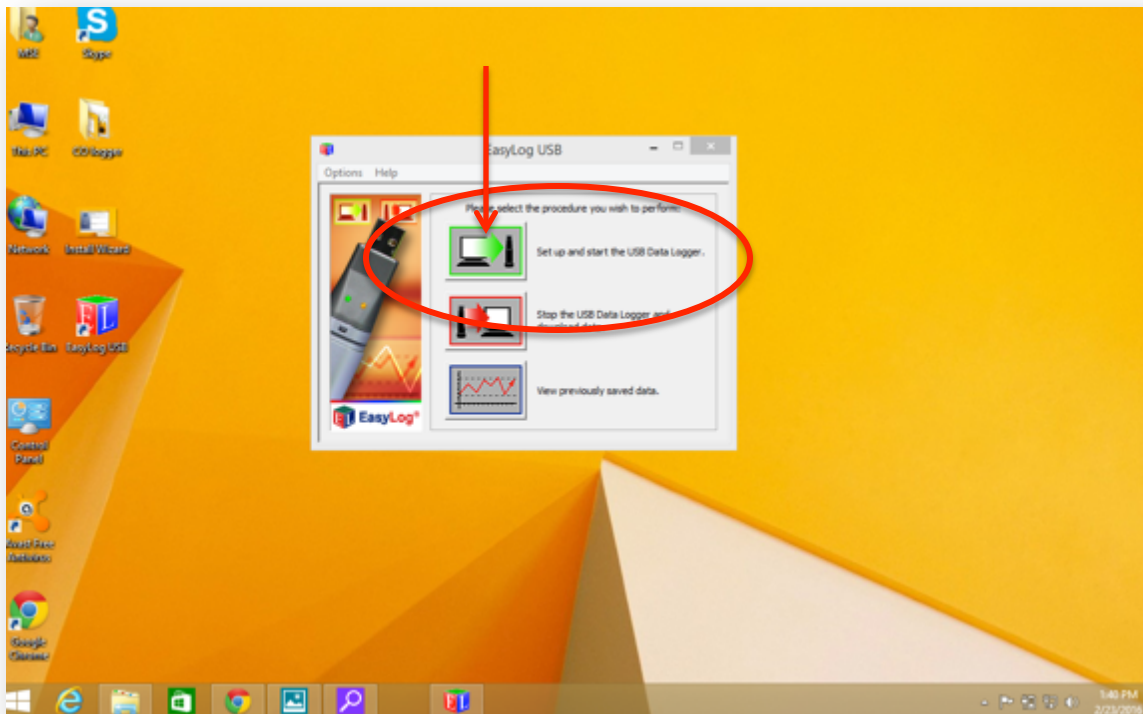
2. You should now see the EasyLogUSB software on your desktop:



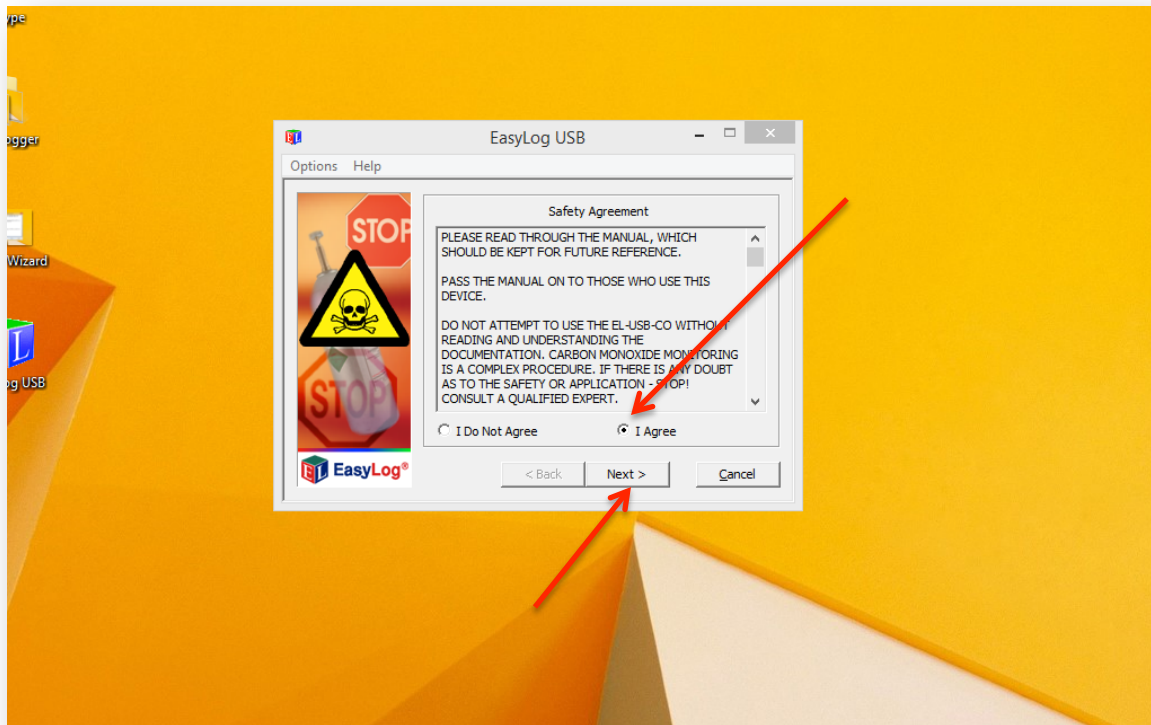
3. Place the battery in the CO logger and plug it into a USB port.
4. Double click on the EasyLog USB icon on your desktop to open the software. You should see this:



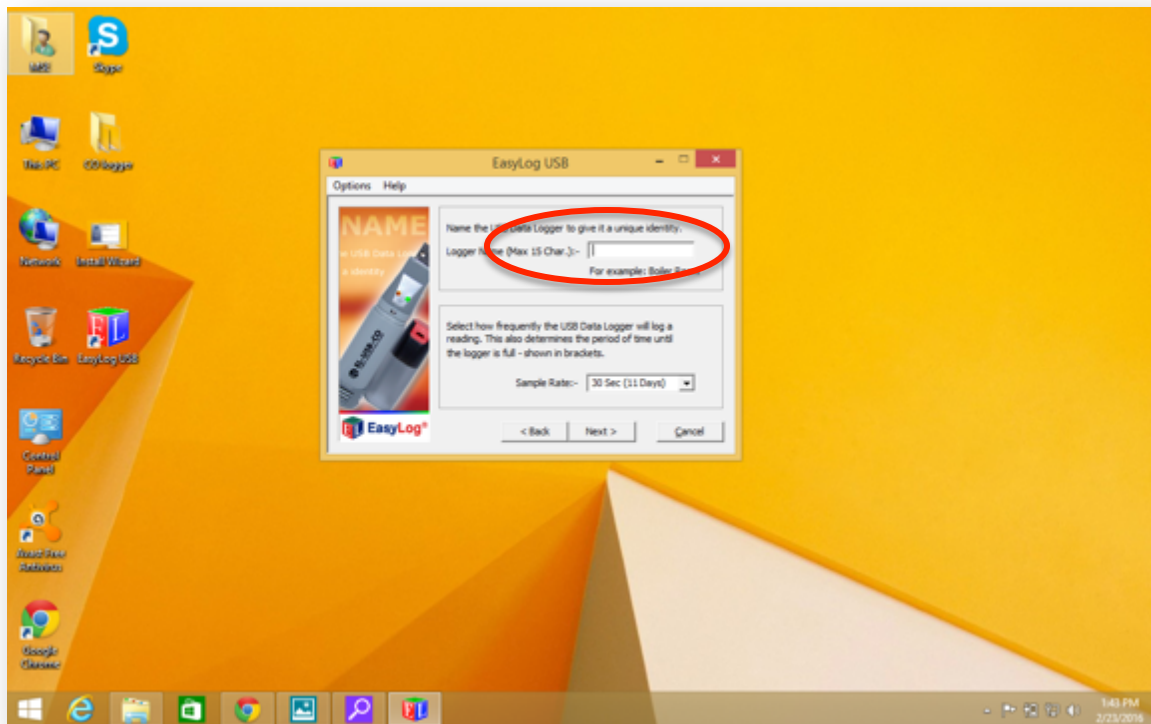
5. Click "Set up and start logger".



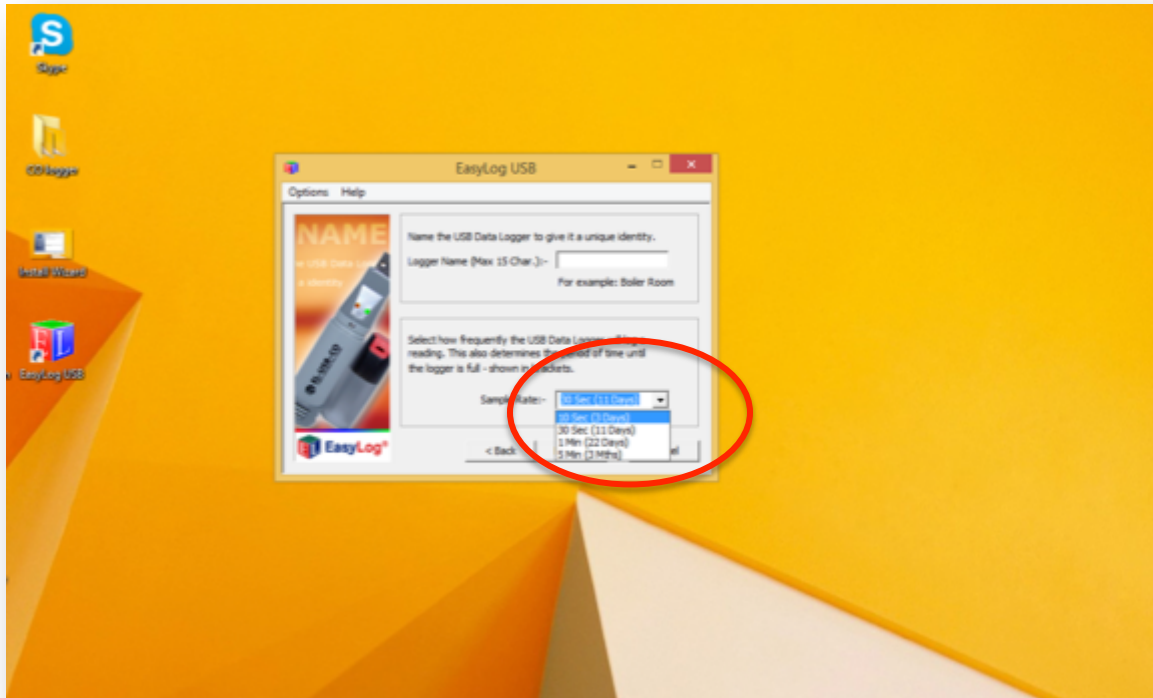
6. Press “I Agree” and “Next” on the Safety Agreement.



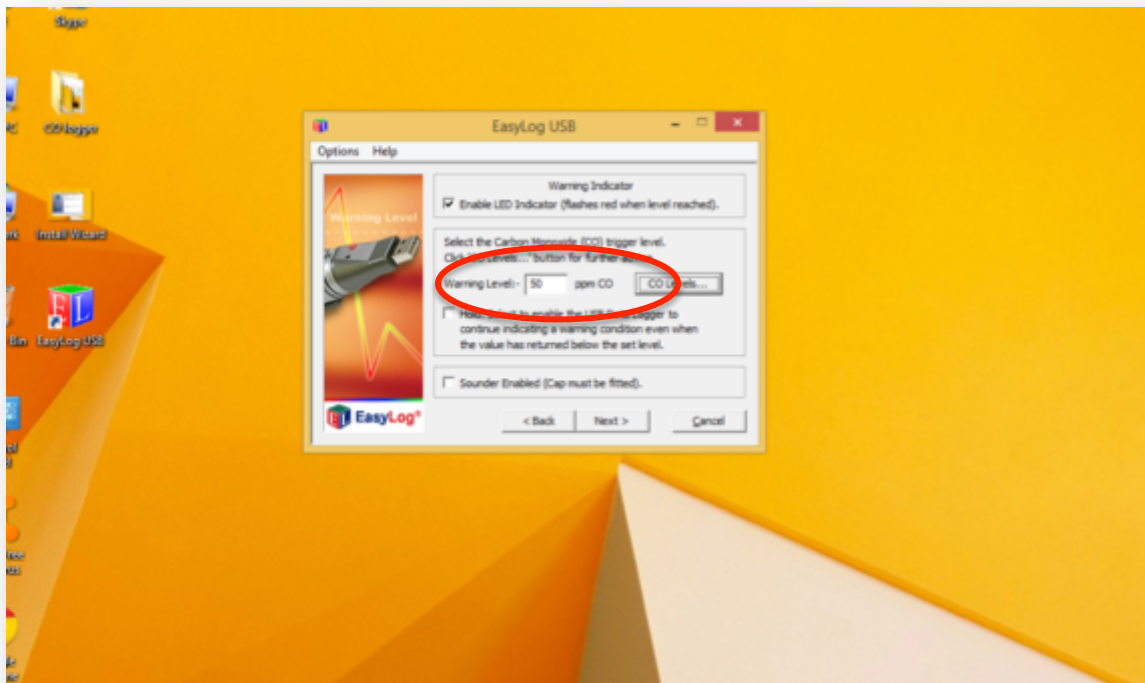
7. Name the logger. Indicating the location where you will be collecting data is useful here.



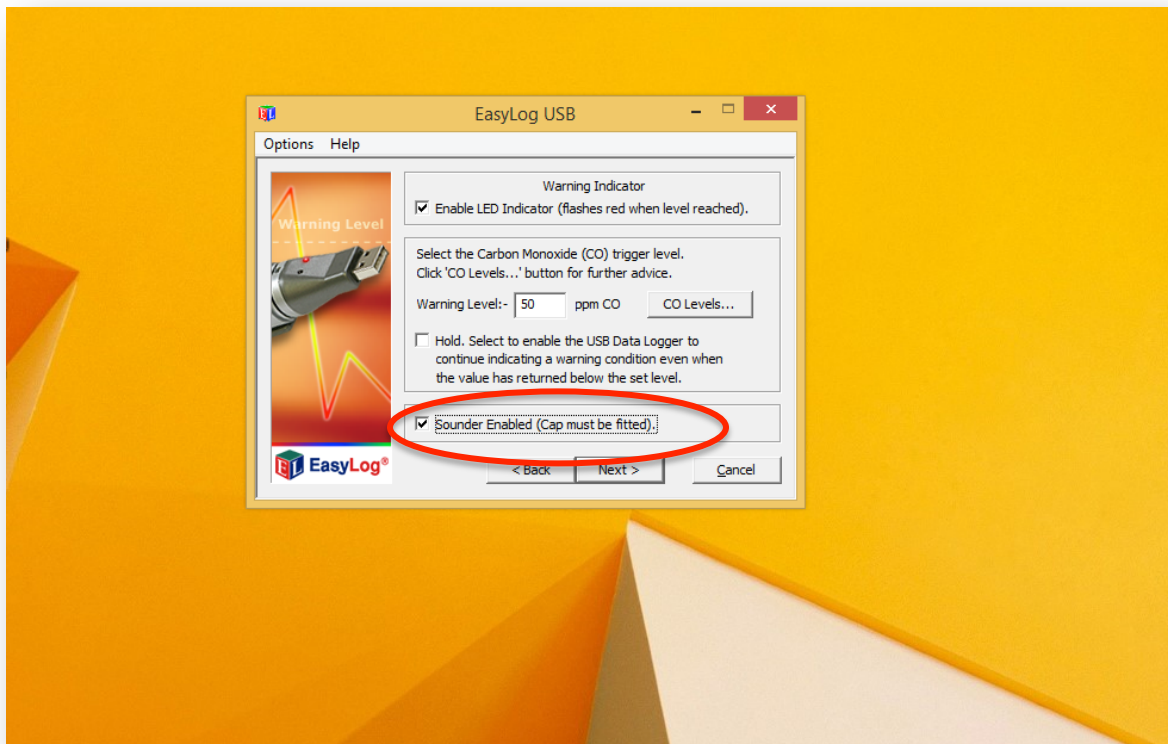
8. On the same screen select the frequency of a reading. (Note that frequency of the reading affects how long the logger can run.)



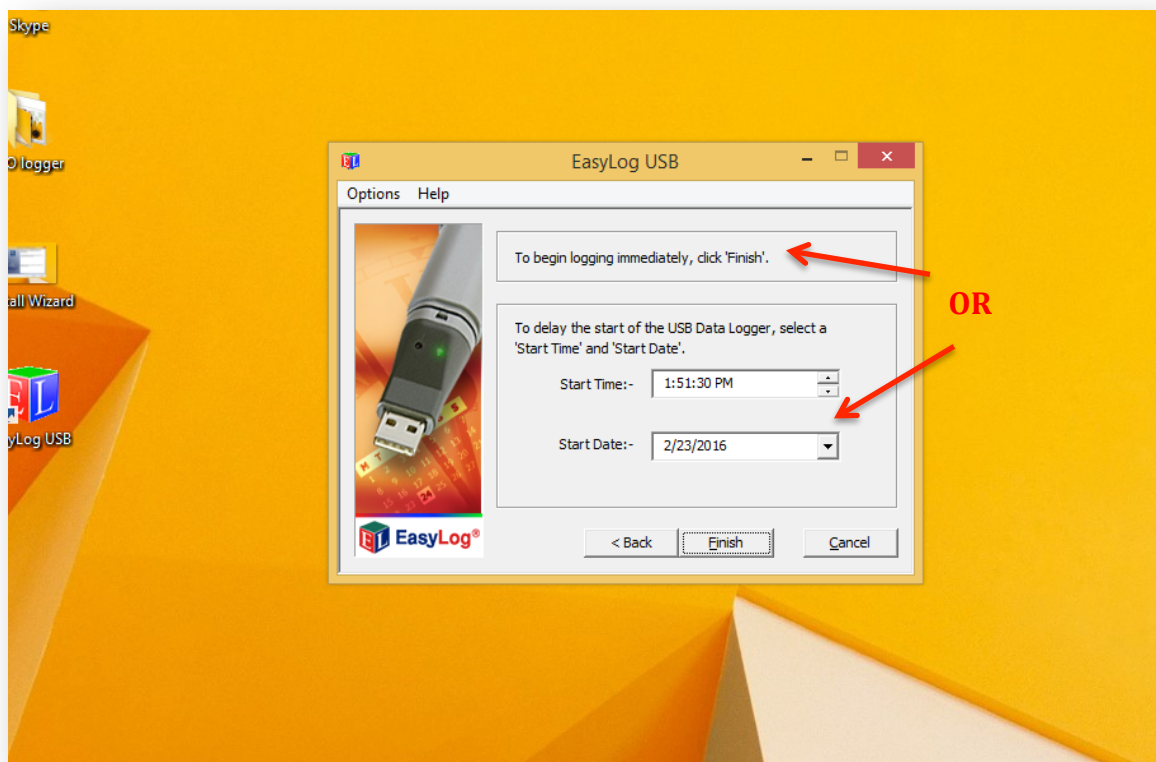
9. Next you will set the warning level (50 is recommended).



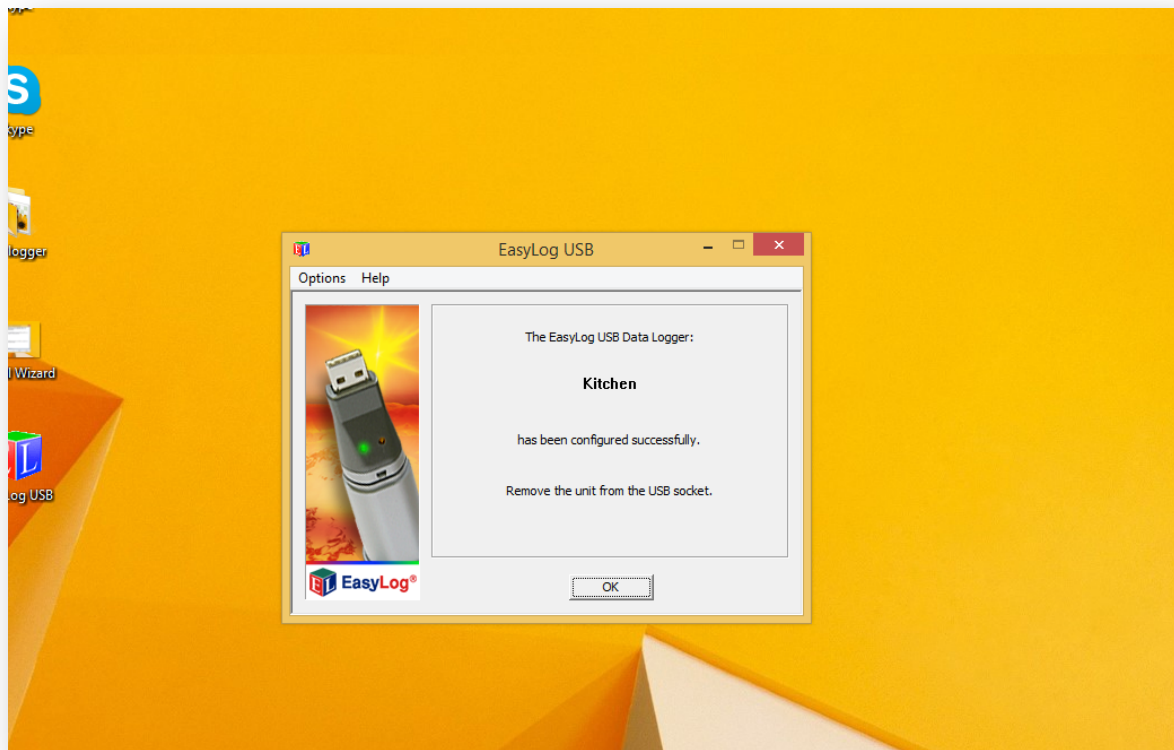
10. Enable or disable alarm and press “Next”.



11. You can now select when to start logging. If you want to start logging immediately select “Finish” or to delay the start select a time and date from the drop down menus for the logger to start.



12. If your logger was successfully set up, you will see this:



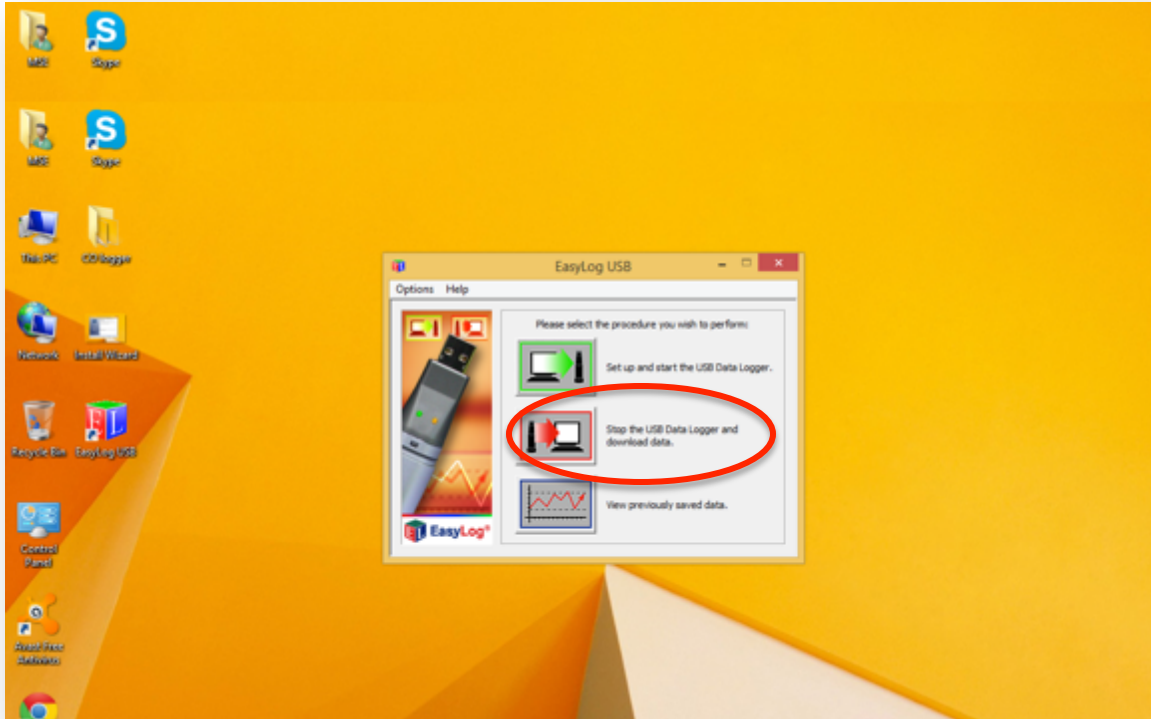
13. If you started logging immediately, you should see a green light flash every 10 seconds on the logger. This means it is successfully collecting data. If you set up the logger for a later time, you should see the green light flash every 30 seconds. This indicates the logger is prepped and ready.

14. Unplug the logger and place it where you are collecting data.

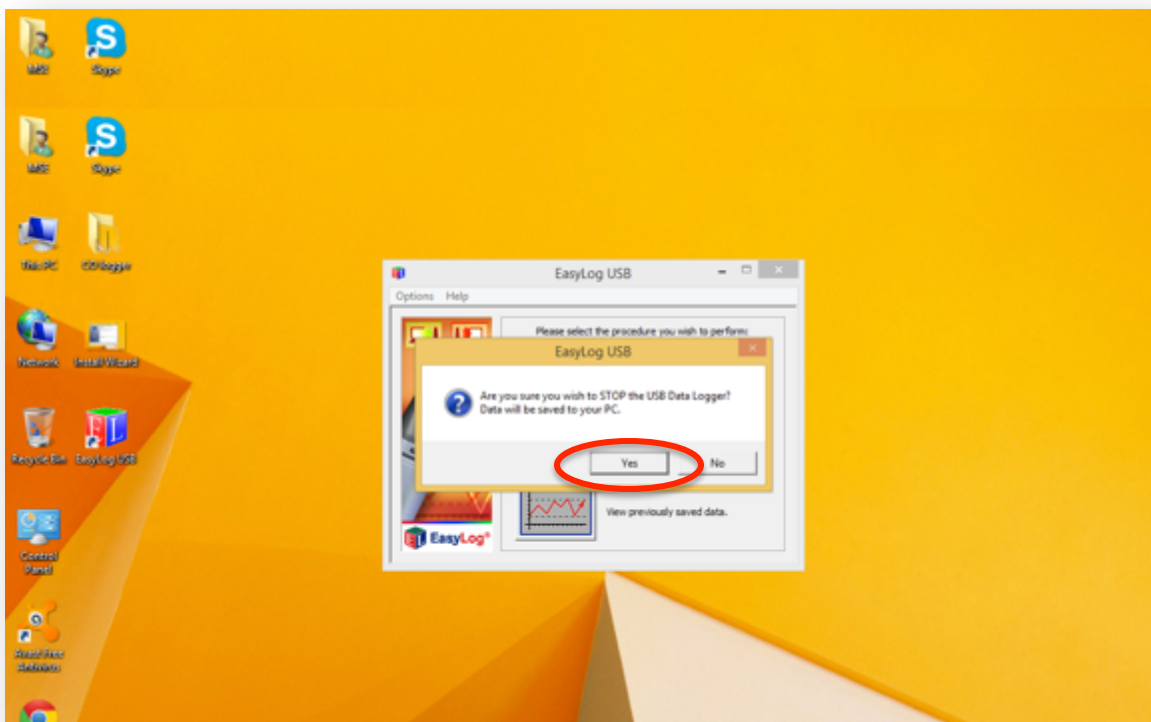
****See next page for stopping data collection and downloading data.**

TO END DATA LOGGING/RETRIEVE DATA

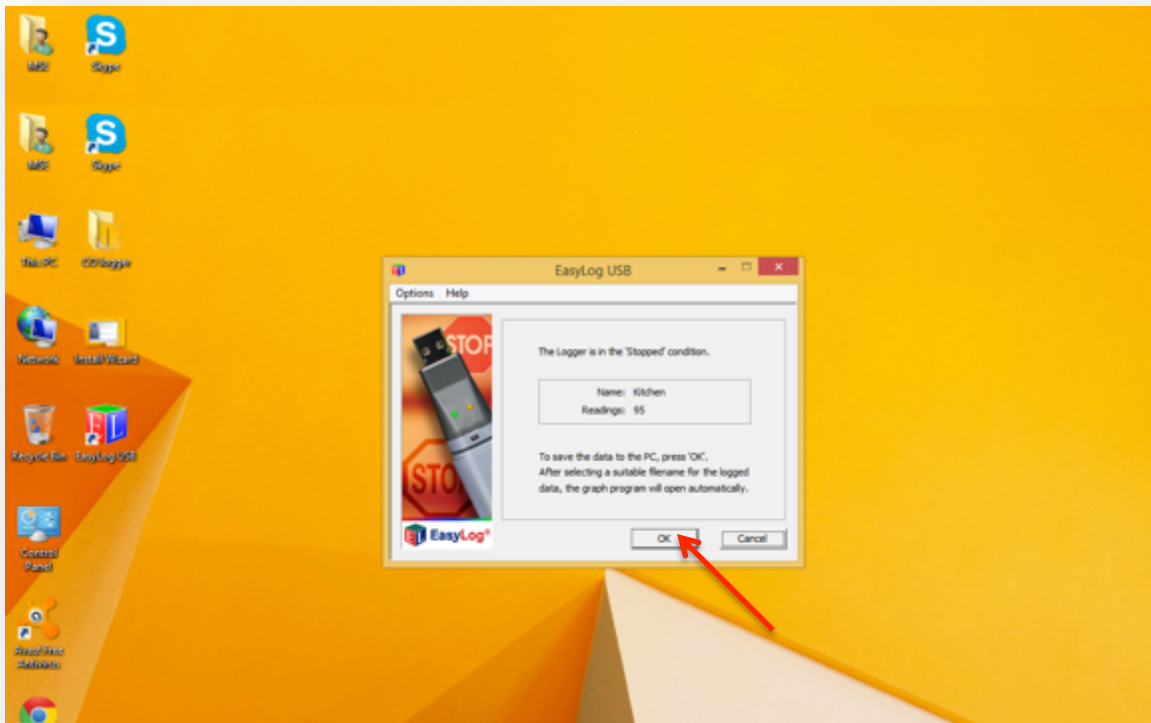
1. Plug the logger back into the computer and open the EasyLogUSB software. Select “Stop the USB Data Logger and download data”.



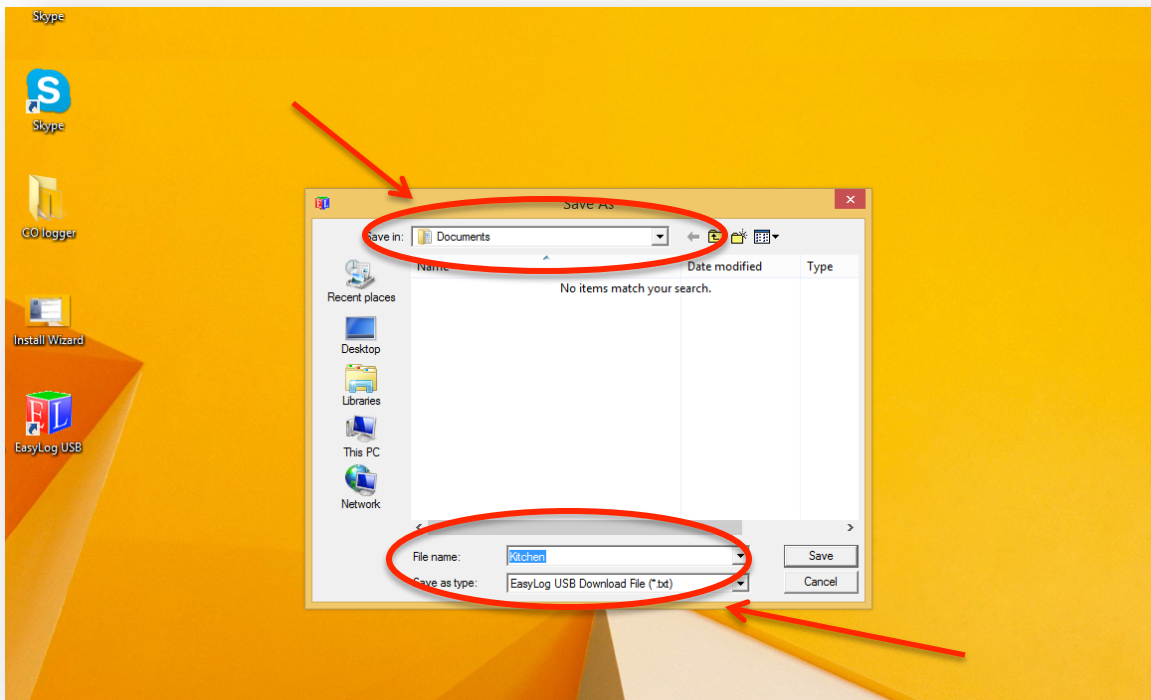
2. When asked if you are sure you want to stop the logger, select “Yes”.



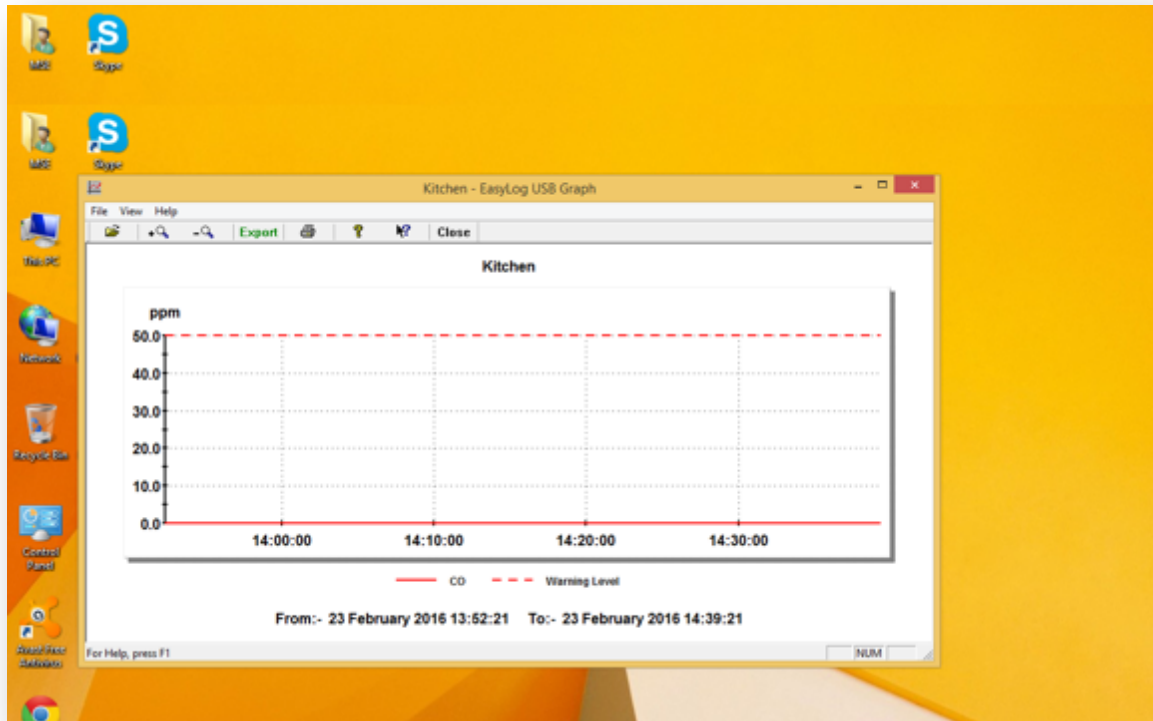
3. You will see a screen saying the logger is in “Stopped condition”. Click “OK”.



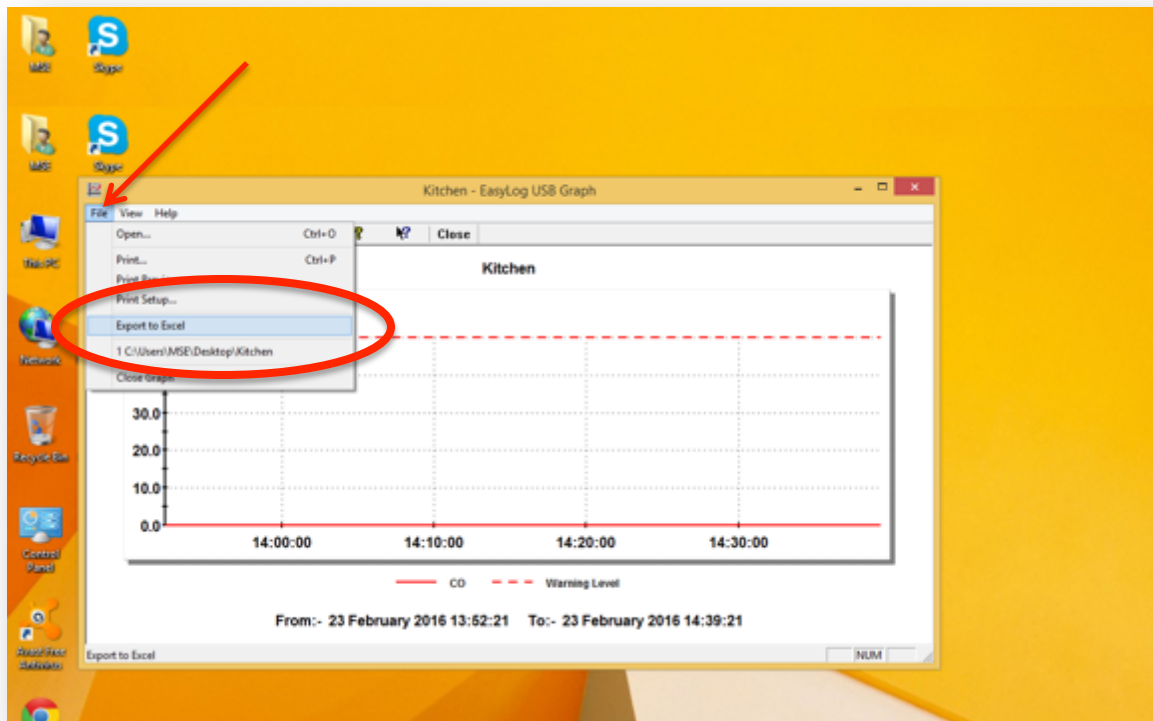
4. Choose how to name and where to save your data file. The desktop is the easiest place to find your data file.



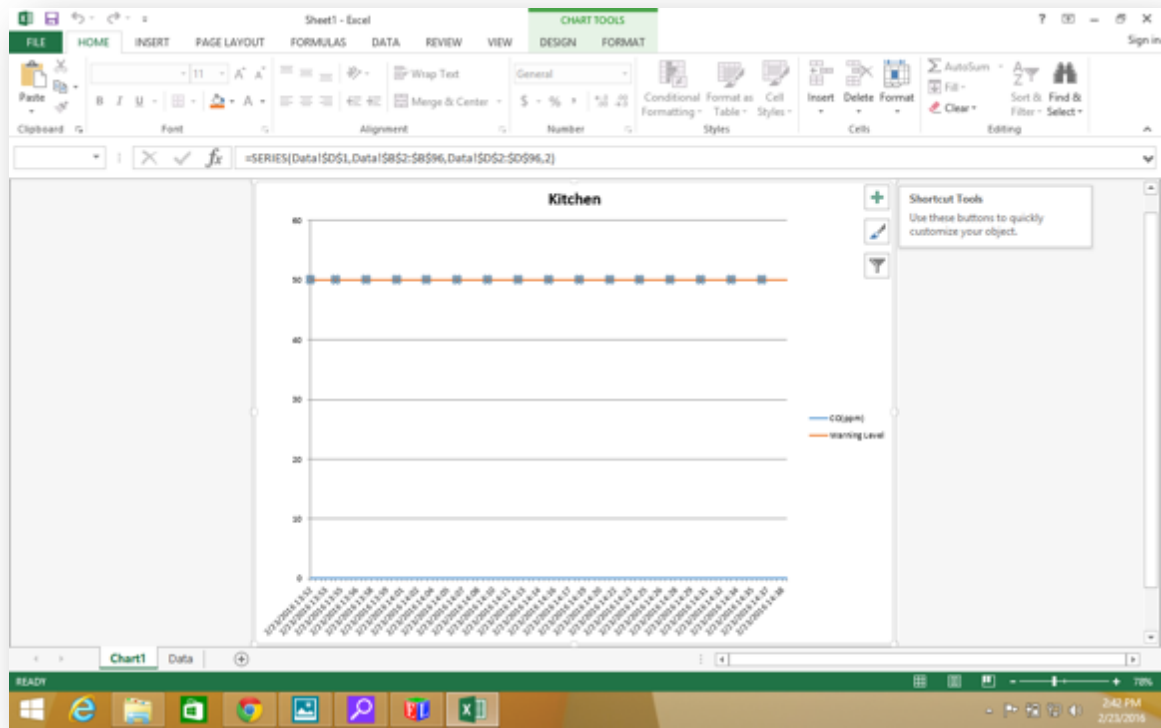
5. A graph is automatically generated.



6. Export the graph to Excel by clicking on "File" and then "Export to Excel".



7. Save the graph in Excel. You can now edit how your graph appears. Note the red line at 50 ppm indicates the warning level.



ND 2/26/16

LASCAR Electronics EL-USB-CO

Carbon Monoxide (CO) Gas Detector Protocol

Note: You will need to install the EL-USB-CO software prior to setting up the sampler. This software is not compatible with Macintosh computers.

Each of the following steps (listed below) should be followed when collecting a CO sample. During sampling, the CO detector will continuously collect data over a period of time. Following the sampling event, the EL-USB-CO software will be utilized to retrieve the data. Final results will be presented in parts per million (ppm) of CO in the air.

Battery Installation

1. Remove the EL-USB-CO Carbon Monoxide Gas Detector from the box.
2. Before using the CO detector, you will need to insert the 3.6V 1/2AA battery. Handle the lithium batteries carefully, and observe warnings on the battery casing.
 - a. Remove the cap from the USB end of the CO Detector.
 - b. Place the tip of a small, flat screw driver onto the metal latch nearest the LED lights and press down gently.
 - c. You will be releasing the dark grey end from the lighter grey side. Pull the pieces apart and place the battery inside, following the illustration printed there.
 - d. Push both pieces back together gently until it clicks and is secure.
3. When the battery is first installed, the red and then green LED will flash for approximately 2 minutes, while the detector stabilizes. Do not connect the CO detector to a computer until this has finished.

USB Driver Installation

1. Insert the USB end of the CO Detector into a USB port on the computer.
2. Insert the software CD into the computer.
3. Your computer should ask you if you want to search for software, answer "No, not this time".
4. On the next screen, you can choose to install via the CD in the drive.
5. The next screen will ask if you want to install the software on your computer, select "Next".
6. On the next screen, accept the terms of the license agreement.
7. On the next screen, click "Next".
8. Your download should begin. After completing the setup, click "Finish".
9. There will be a new icon on your desktop.

Starting the Logger for Sampling

1. Attach the CO detector to the software to set up your sampling event.

2. Double click the desktop icon for EasyLog USB and choose what action you would like to perform (starting the logger, stopping the logger, or viewing data).
3. If you choose to start the logger, you will then need to agree to the safety disclaimer.
4. On the next screen you can name the CO Detector if necessary to keep track of it from other detectors. (This does not name a data file, but instead gives an ID for the actual detector.)
5. Choose the frequency of data logging you prefer (ex. 10 seconds). This means a sample will be collected every 10 seconds for the duration of the sampling event (or until the data storage runs out).
6. On the next screen you can choose the alarm LED (red) to light up when you reach a warning level you choose. The Detector can also sound an alarm, (requiring the plastic cap be fitted when it's running). If you don't want the sound, you can choose to disable it.
7. The next page allows you to select a time and date for your sample to begin. Or, if you prefer, you can press Finish without changing anything and it will start immediately.

As long as the battery is installed (and holds a charge), the CO Detector is running. The LED lights will indicate what the instrument is doing. Here are the LED light options you will encounter (note that when the battery is first installed the red and then green LED will flash for approximately 2 minutes, while the detector stabilizes):

- a. **Green single flash (every 10 seconds):** The CO Detector is currently logging. No alarm.
- b. **Green single flash (every 20 seconds):** The CO Detector is currently logging. No alarm. However, the battery is low and should be replaced before logging important data.
- c. **Green single flash (every 30 seconds):** The CO Detector is not currently logging, but is primed to start at a later date and time (via computer program as discussed above).
- d. **Green double flash (every 20 seconds):** The CO Detector is full and has stopped logging. No alarm.
- e. **Red single flash (every 10 seconds):** The CO Detector is currently logging. Alarm.
- f. **Red/Green single flash (every 20 seconds):** The CO Detector is full and has stopped logging. Alarm.
- g. **No LED flash:** The CO Detector has stopped, the battery is empty, or there is no battery inserted.

Stopping the Logger

To stop the CO sampler, you need to link it with the software.

1. Choose the stopping option by clicking it.

2. The screen will now show you what the name (ID) of the detector is and how many readings it stored.
3. You can now click "OK" to download the data, or "Cancel" to return to the main menu. You can now exit from the program.

Viewing Data

1. If you are downloading data after stopping the CO Monitor, a screen will pop up that allows you to name your file and save it to whatever folder you like. Choose something unique for a name, including the date of the sampling event (i.e. Weiler080613).
2. After you save it, you will be shown a screen that graphs your data.
3. You can access saved files by using the software's main menu too, by selecting "View Previously Saved Data".
4. After selecting this, you will be presented with a graph like before. To look at the data in table form, click "EXPORT."
5. A new Excel workbook will open. On one sheet will be a more detailed graph, and on the second sheet will be the tabulated data.

After Sampling

1. If sampling will not be performed again for a while, remove the battery by using the small, flat screwdriver again. Store the battery with the CO Detector.
2. Place the plastic cap gently over the USB end of the CO Detector and put back into box.

Updated 8/8/13 EW

Carbon Monoxide Detector Data Sheet

Student Name: _____

Start Date / Time: _____ / _____

End Date / Time: _____ / _____

Total Sample Time: _____ (min)

Description of Sampling Location: _____

Minimum CO concentration: _____(ppm)

Average CO concentration: _____(ppm)

Maximum CO concentration: _____(ppm)

Notes about sampling run (any information that may have influenced the results of your sample):

Were there any errors reported in the data (circle one)? YES or NO

If yes, please explain: _____

Did the Carbon Monoxide levels ever exceed the warning level (circle one)? YES or NO