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.

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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