INSTRUMENTS

Eagle 2 Data Logger Management Program Operator's Manual

Part Number: 71-0170RK

Revision: H

Released: 8/9/21

www.rkiinstruments.com

Warranty

RKI Instruments, Inc. warrants gas alarm equipment sold by us to be free from defects in materials and workmanship, and performance for a period of one year from date of shipment from RKI Instruments, Inc. Any parts found defective within that period will be repaired or replaced, at our option, free of charge. This warranty does not apply to those items which by their nature are subject to deterioration or consumption in normal service, and which must be cleaned, repaired, or replaced on a routine basis. Examples of such items are:

Absorbent cartridges	Batteries
Pump diaphragms and valves	Filter elements
Fuses	

Warranty is voided by abuse including mechanical damage, alteration, rough handling, or repairs procedures not in accordance with the instruction manual. This warranty indicates the full extent of our liability, and we are not responsible for removal or replacement costs, local repair costs, transportation costs, or contingent expenses incurred without our prior approval.

This warranty is expressly in lieu of any and all other warranties and representations, expressed or implied, and all other obligations or liabilities on the part of RKI Instruments, Inc. including but not limited to the warranty of merchantability or fitness for a particular purpose. In no event shall RKI Instruments, Inc. be liable for indirect, incidental, or consequential loss or damage of any kind connected with the use of its products or failure of its products to function or operate properly.

This warranty covers instruments and parts sold to users only by authorized distributors, dealers, and representatives as appointed by RKI Instruments, Inc.

We do not assume indemnification for any accident or damage caused by the operation of this gas monitor and our warranty is limited to replacement of parts or our complete goods.

Table of Contents

CAUTION:	*Read and understand this manual before using the Eagle 2 Data Logger Management Program. Also read and understand the Eagle 2 Operator's Manual included with the Eagle 2 portable gas detector.*

Chapter 1: Introduction

Overview

Using an advanced detection system consisting of up to six gas sensors, the Eagle 2 Gas Monitor detects the presence of combustible gases, oxygen (O_2), carbon monoxide (CO), hydrogen sulfide (H_2S), and 2 other gases simultaneously. The Eagle 2's compact size and easy-to-use design make it ideally suited for a wide range of applications as described in the Eagle 2 Operator's Manual. Please read the Eagle 2 Operator's Manual first before using the Eagle 2 Data Logger Management Program.

The Eagle 2 Data Logger Management Program downloads stored data in the Eagle 2 to a Windows-based PC. After the data has been downloaded, you can view, save, or print it using your computer and the Eagle 2 Data Logger Management Program.

The purpose of this manual is to explain how to use and set up the Eagle 2 Data Logger Management Program. You will learn how to:

- install and launch the program
- install the downloading cable (if needed)
- download data from the Eagle 2
- view, print, and save data
- change data logging parameters
- perform a calibration
- change the appearance of the program screens
- change the color of graphed readings for a particular gas

Before you get started, be sure to review the system requirements in the next section.

CAUTION:	*The Eagle 2 detects oxygen deficiency and elevated levels of oxygen, combustible gases, carbon monoxide, and hydrogen sulfide, all of which can be dangerous or life threatening. When using the Eagle 2, you must follow the instructions and warnings in the Eagle 2 Operator's Manual to assure proper and safe operation of the unit and to minimize the risk of personal injury.*

CAUTION:	*The operator of this instrument is advised that if the equipment is used in a manner not specified in this manual, the protection provided by the equipment may be impaired.*

System Requirements

To use the Eagle 2 Data Logger Management Program , your personal computer must meet the following requirements:

- **Operating Systems:** Windows® 7, Windows® 8, or Windows® 10.
- **Processor:** IBM® compatible PC running Pentium® 2 or higher.
- **Memory:** 32 MB RAM minimum
- **Available Hard Disk Space:** 32 MB minimum
- **Infrared port** or

  USB port and a USB/IrDA adapter cable

Eagle 2 Data Logging Capacity

Table 1: Data Logging Capacity, 4-gas Eagle 2

Interval Trend Time	Data Logging Hours
5 seconds	239 hours (10 days)
10 seconds	479 hours (20 days)
20 seconds	959 hours (40 days)
30 seconds	1439 hours (60 days)
60 seconds	2879 hours (120 days)
180 seconds (3 minutes)	8639 hours (360 days)
300 seconds (5 minutes)	14,399 hours (600 days)
600 seconds (10 minutes)	28,798 hours (2,000 days)

Table 1 above lists the Eagle 2's data logging capacity for a 4-gas unit for each interval trend time setting assuming no alarms or other events. The interval trend time setting can be set using the Set Window (see "Changing Instrument Parameters" on page 55). It can also be set in the Eagle 2 Setup Mode (see the Eagle 2 Operator's Manual).

Overwriting Data in the Eagle 2

The Eagle 2's Data Log Overwrite function is factory set to *On* so that when the Eagle 2's data logging memory becomes full, it begins to overwrite the oldest interval trend data with new internal trend data. Download data regularly to avoid over-writing data in the Eagle 2 before it can be downloaded. The Data Log Overwrite function is accessible using the Eagle 2 Setup Mode. To set the Data Log Overwrite function to *Off*, see the Eagle 2 Operator's Manual. When the Data Log Overwrite function is set to off, the Eagle 2 will stop saving data when its data logging memory is full.

The Data Log Overwrite function applies only to interval trend data. All other data, such as alarm trend data, event data, or calibration data, will continue to be saved when the memory is full. If the maximum number of each of these types of data has been reached, the oldest data will be overwritten.

Chapter 2: Setup

Installing the Eagle 2 Data Logger Management Program

1. Launch Windows®.
2. Exit from all applications and open windows.
3. Go to www.rkiinstruments.com/eagle2.
4. Click on the **Download** tab.
5. Click the **EAGLE 2 Data Logger Software** link.
6. A .zip file will begin to download. Select whether you want to open or save the .zip file.
7. Extract the contents of the .zip file.
8. Double click the **setup.exe** file.
9. After a few seconds, a screen appears indicating that the InstallShield Wizard is preparing to install the Data Logger Management Program, then the Eagle 2 InstallShield Wizard window appears to guide you through installation.

Figure 1: Eagle 2 Data Management Installation Program

10. Follow the on-screen instructions in the InstallShield Wizard Window to install the program.
11. If the InstallShield Wizard finds versions of Windows® files on your computer newer than those in the downloaded .zip file, it will ask you if you want to keep these newer files. Click **Yes**.
12. When the InstallShield Wizard indicates that installation is complete, click the **Finish** button.

IrDA Downloading Cable

The Eagle 2 communicates with a computer via an on-board infrared communication port that complies with IrDA protocol standards.

NOTE: If your computer has a built-in infrared port, you do not need an adapter cable to download data.

If your computer does not have an infrared port, you will need to install an IrDA/USB adapter cable on your computer to use the Eagle 2 Data Logger Management Program with your Eagle 2. The IrDA/USB cable is available from RKI Instruments, Inc. See the Spare Parts List at the end of this manual for the RKI part number.

Some versions of Windows® already have several infrared device drivers loaded in Windows® and will automatically recognize a cable during the installation process and guide you in installing the drivers. Other versions of Windows® will require you to load device drivers provided by the manufacturer of the cable during the installation process. RKI makes no warranty for the operation or compatibility of the drivers with any particular device.

Installing an IrDA Adapter Cable

After installing the Eagle 2 Data Logger Management Program, connect the IrDA/USB cable to your computer and follow the manufacturer's instructions for installing the cable on your computer. Make sure the cable is compatible with your Windows® operating system.

If you do not have instructions from the cable manufacturer for installing your cable, see your Windows documentation. In general, you must go to the Control Panel and use the Add Hardware Wizard to install the cable drivers.

Windows® Infrared Operation Note

When using an IrDA adapter cable and the Eagle 2 Data Logger Management Program on a Windows® computer, it is necessary to make a special setting in the Infrared Configuration window for proper communication between the Eagle 2 and the Eagle 2 Data Logger Management Program. This must be done before attempting to use the program.

NOTE: If you have a Windows 7 computer, the Infrared Configuration window may not appear. If the Infrared Configuration window does not appear, disregard the directions below.

Follow these steps to make this setting:

1. Click **Start** on the Windows® Icon Tray.
2. If **Control Panel** is available to select in the **Start** menu, select it. The Control Panel will appear.

   If **Control Panel** is not selectable in the Start menu but **Settings** is, select **Settings**, then select **Control Panel**. The Control Panel will appear.

3. If the Control Panel is viewed by category, open the **Hardware and Sound** folder then click "Send or Receive a File" under the **Infrared** section. The Infrared Configuration window will appear.

   If the Control Panel is viewed by icon, click the **Infrared** icon. The Infrared Configuration window will appear.

4. Click on the Image Transfer tab.
5. Deselect the selection box for "Allow digital cameras to use infrared to transfer images directly to my computer".

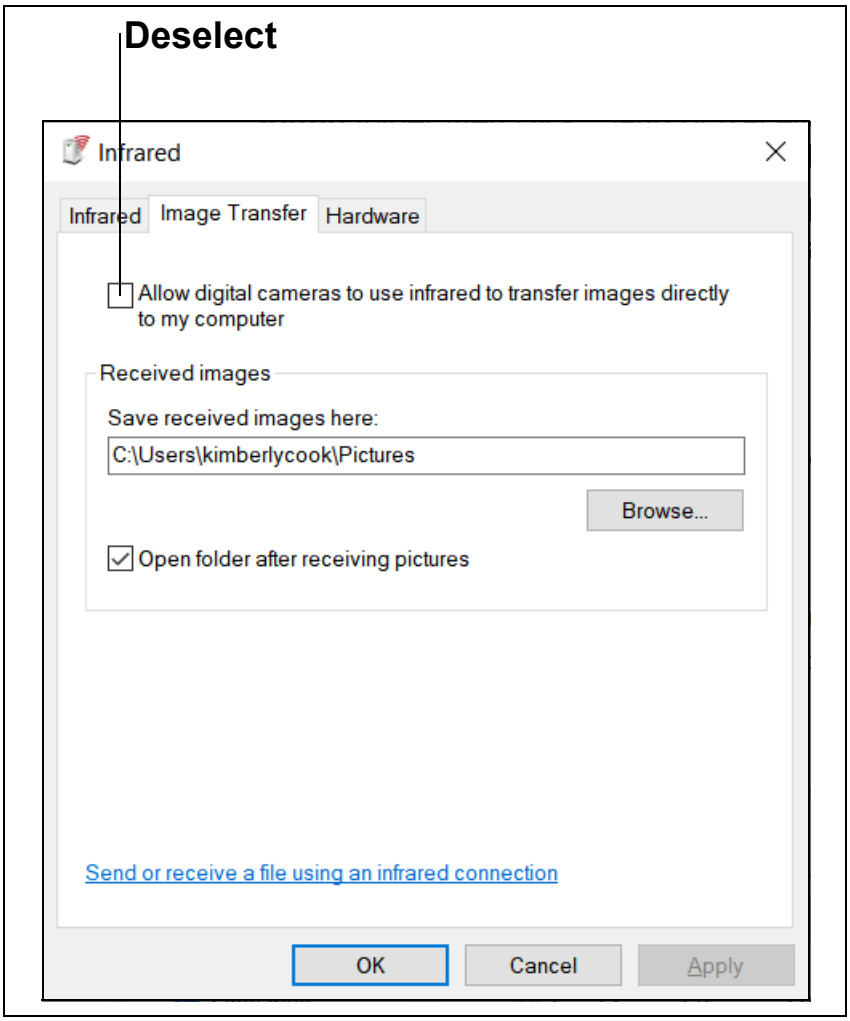


Figure 2: Image Transfer Tab

6. Click **OK**.
7. Close the Control Panel window.

Chapter 3: Operation

Launching the Program

1. For Windows® 7 computers, click the **Start** icon in the Windows® Icon Tray, then select **Programs**, then select **Eagle 2**. Your operating system may also have a shortcut installed in the **Start** menu.

   For Windows® 8 and Windows® 10 computers, click the **Start** icon in the Windows® Icon Tray, then click the downward-pointing arrow icon in the lower left corner of the screen, then select **Eagle 2** from the list of apps.

2. The program will launch and the Download Window will appear.

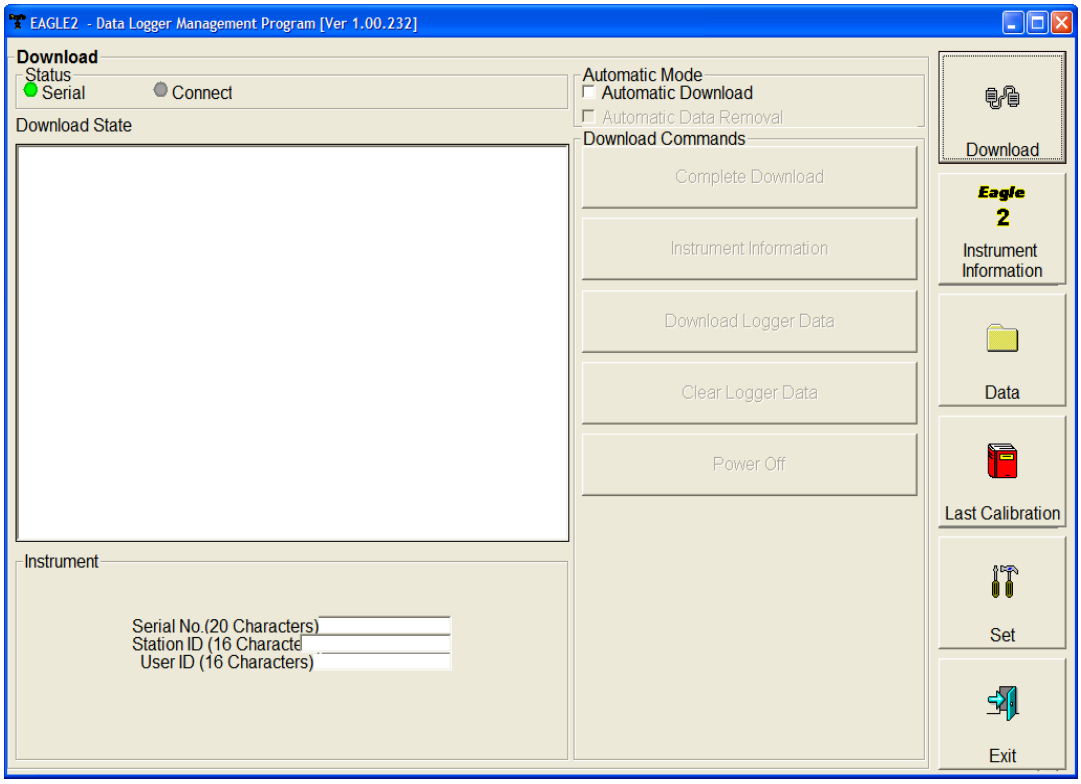


Figure 3: The Download Window

3. For convenience, make a shortcut of the Eagle 2 Data Logger Management Program and place it on the Windows® desktop. See your Windows® documentation for information about making shortcuts.

Connecting an Instrument

1. Launch the Eagle 2 Data Logger Management Program
2. Place the Eagle 2 within an inch or two of the infrared port on your computer aligning the infrared port on the front of the Eagle 2 with the infrared port on your computer.

   If your computer does not have a built in infrared port, place the Eagle 2 within an inch or two of the infrared port on the IrDA adapter cable as shown in Figure 4 below, aligning the infrared port on the front of the Eagle 2 with the infrared port on the cable. You may need to place the IrDA adapter cable on an object to raise it to the same level as the Eagle 2's infrared port.

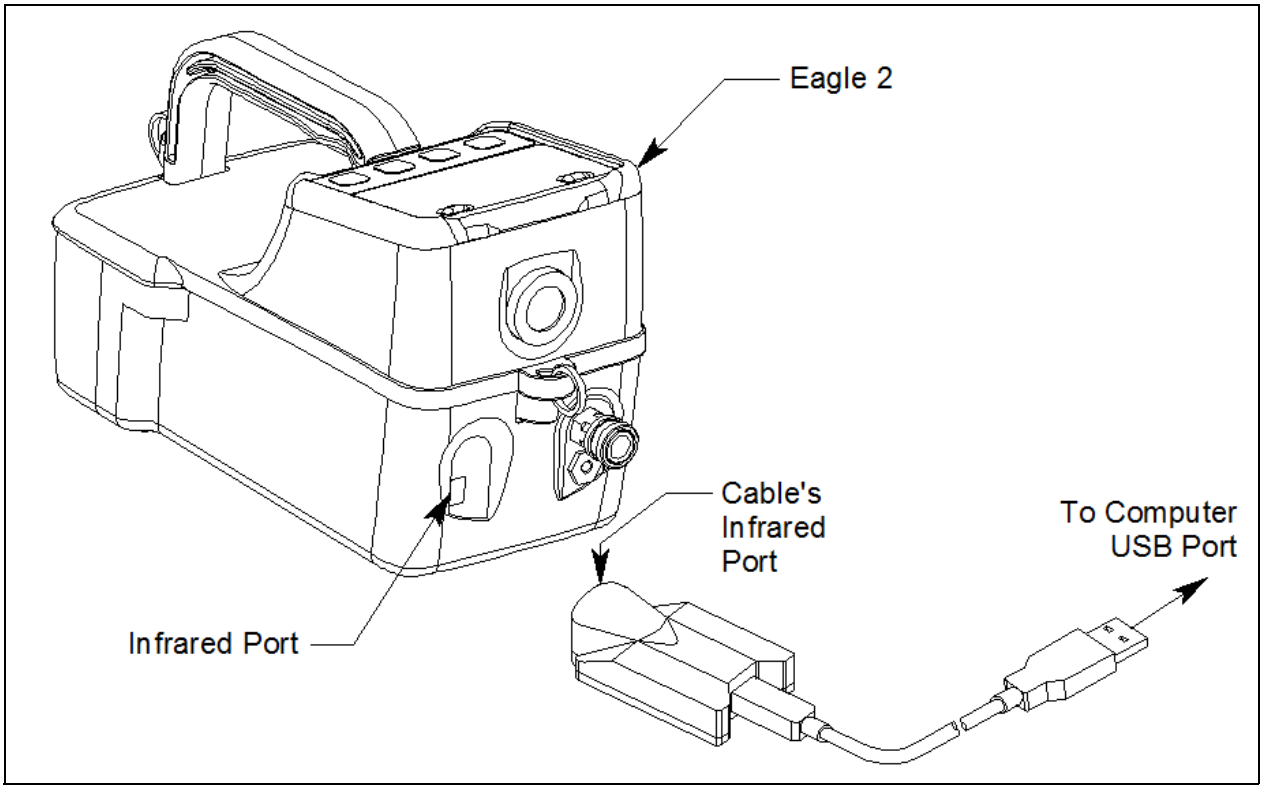


Figure 4: Aligning the Eagle 2 with the Cable Infrared Receiver

3. Press and hold the POWER ENTER RESET button on the Eagle 2 until you hear a beep, then release it. The Eagle 2 will begin its power up sequence. If a successful connection between the Eagle 2 and the computer occurs, the Connect light in the Download window turns green after a few seconds and "Connection Successful." displays in the Download area of the Download window.

   The Windows® icon tray will indicate that a wireless connection is in effect.

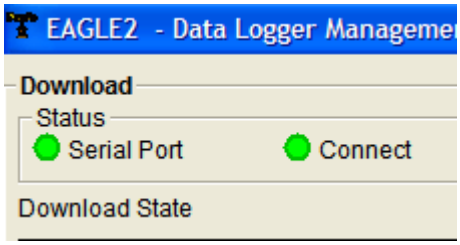


Figure 5: Connection Message

Downloading Data

Automatic Downloading

1. Select the **Automatic Download** selection box.

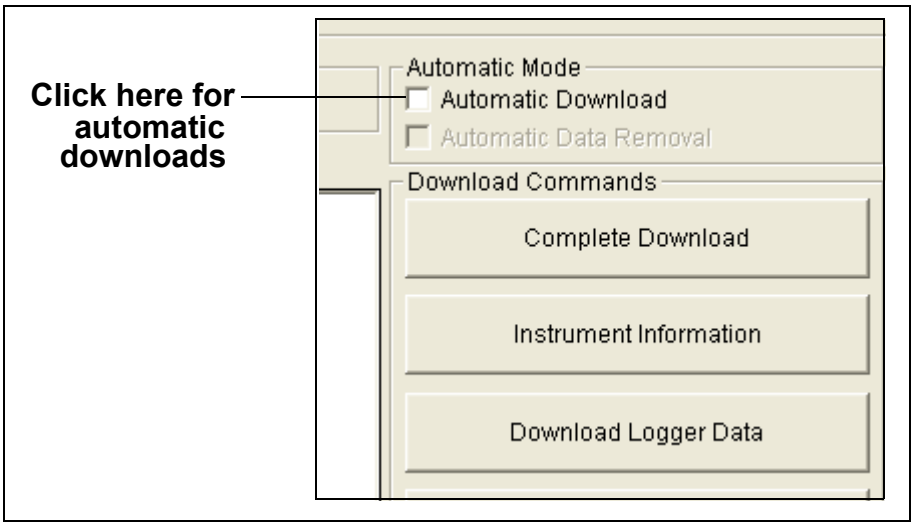


Figure 6: Automatic Download Selection Box

2. If you want the data in the instrument to be automatically cleared after an automatic download, select the **Automatic Data Removal** box. The **Automatic Data Removal** box is only available for selection if the **Automatic Download** box is selected.
3. Connect an instrument as described on page 12.
4. A download begins automatically after a successful connection is made.
5. The instrument will turn off automatically after the data has been downloaded.

Manual Downloading

1. To download logged data and instrument information from the instrument, click **Complete Download**.
2. To download instrument information only, click **Instrument Information.**
3. To download logged data only, click **Download Logger Data. Download Logger Data** becomes selectable only after a Complete Download or Instrument Information Download Command has been performed.
4. While the data is being downloaded, messages in the download message area of the Download window indicate what actions the program is performing and if there are any communication or downloading problems. These messages also tell you what type of information has been downloaded.

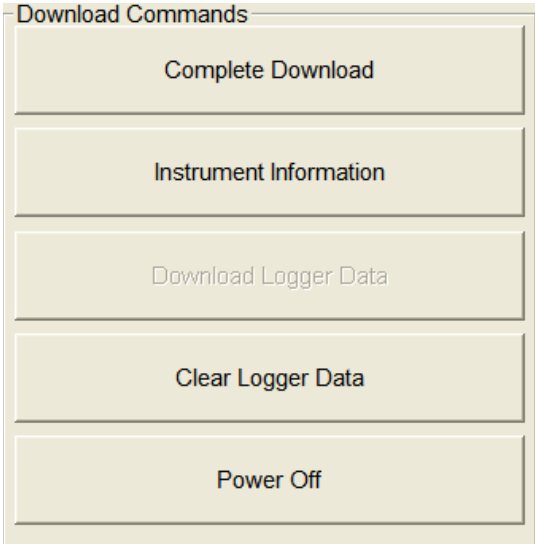


Figure 7: Download Commands

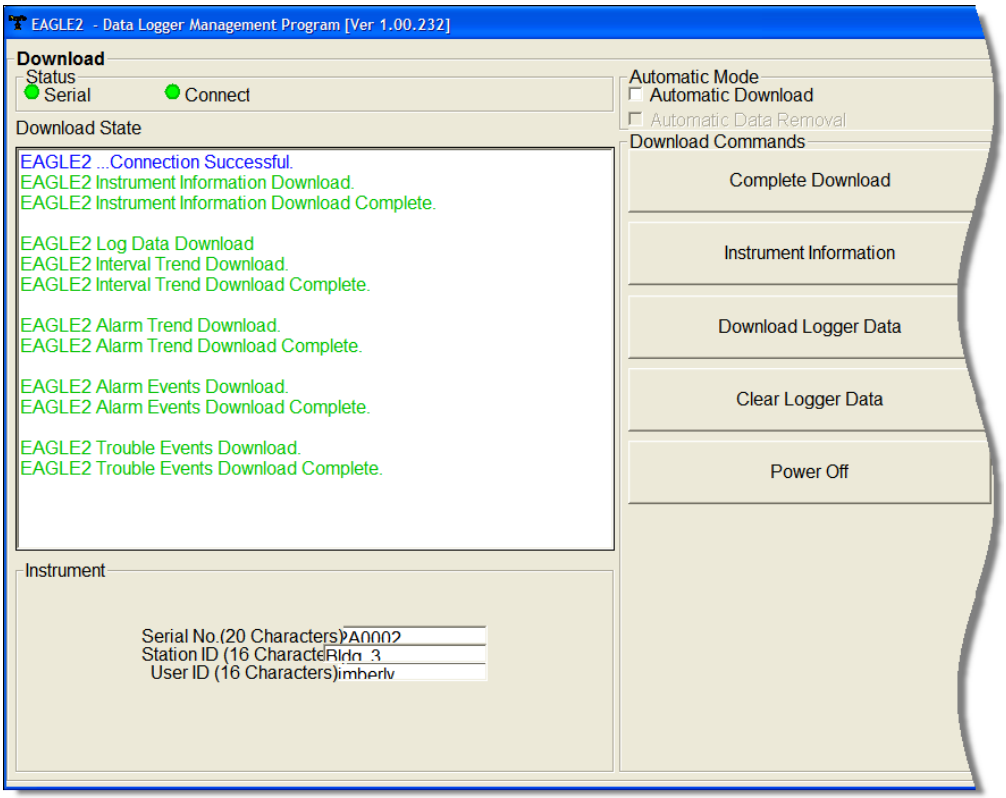


Figure 8: Download Messages & Download Commands

5. After downloading data from an instrument, you can delete all the data in the Eagle 2 by clicking **Clear Logger Data** if desired. This will not delete instrument parameters such as serial number, alarm settings, or autocalibration settings.

WARNING:	***If you click Clear Logger Data, all data is erased in the Eagle 2, but not in your computer's memory. So it's advisable that you download the data from the Eagle 2 first before clearing the data.***

Turning Off an Instrument

1. Click **Download**.
2. Click **Power Off**. The instrument will shut off.
3. Click Exit in the bottom right corner of the program.

Chapter 4: Instrument Information Window

You can view information for an instrument that has been downloaded and is currently connected by using the Instrument Information Window. Information cannot be printed or deleted in this window. Once the instrument is turned off, the Instrument Information Window becomes blank. Access the Instrument Information Window by clicking the **Instrument Information** button along the right side of the program window. The Instrument Information Window will display.

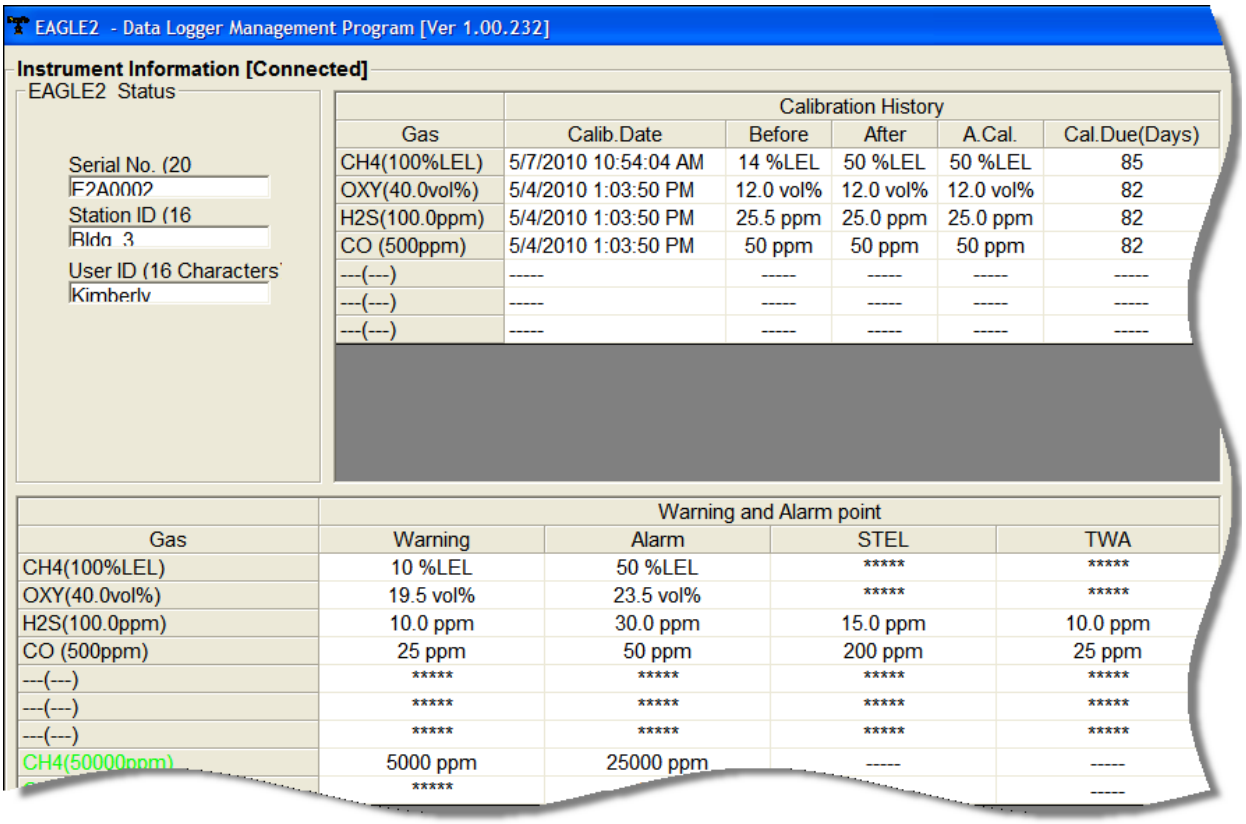


Figure 9: Instrument Information Window

- The serial number, station ID, and user ID are displayed in the upper left portion of the Instrument Information Window.
- The Calibration History Frame is displayed in the upper right section of the window and it shows the information for the most recent successful calibration of the connected instrument.
  - Gas - Lists each channel's gas in the order it appears on the Eagle 2 screen.
  - Calib. Date - Shows the date and time of the most recent successful calibration for each channel.
  - Before — shows the gas response prior to calibration.
  - After — shows the gas response after calibration.

- A. Cal. — lists the auto-calibration setting for each channel of the Eagle 2. If a Eagle 2 passes its calibration, the “After” column should match the “A. Cal.” column. If the Eagle 2 fails calibration on any of its channels, those channels will retain the previous calibration information.

NOTE: If a unit is calibrated using Single Calibration in the Eagle 2’s Calibration Mode (see the Eagle 2 Operator’s Manual) it is possible for the “After” reading to be different from the “A.Cal” setting if the unit was set to a level different than the “A.Cal” setting.

- Cal. Due (Days) - Shows how many days remain before calibration is required for each gas.

- The Warning and Alarm Point Frame is displayed in the lower half of the window.
  - Gas - Lists each channel’s gas in the order it appears on the Eagle 2 screen.
  - Warning - Shows the warning setpoint.
  - Alarm - Shows the alarm setpoint.
  - STEL - Shows the STEL (short term exposure limit) setpoint for applicable gases.
  - TWA - Shows the TWA (time-weighted average) setpoint for applicable gases.

All values in the Warning and Alarm Point Frame can be changed using the Set window.

Chapter 5: Data Window

The Eagle 2 logs four types of data files: calibration history, interval trend data, alarm trend data, and event data.

You can view, print, and export (save to a file) each of these types of data files. All of these types of data files can also be deleted. The deleting of files is password protected and is described in “Deleting Data in the Data Window” on page 43.

1. Click **Data** on the right side of the program window.

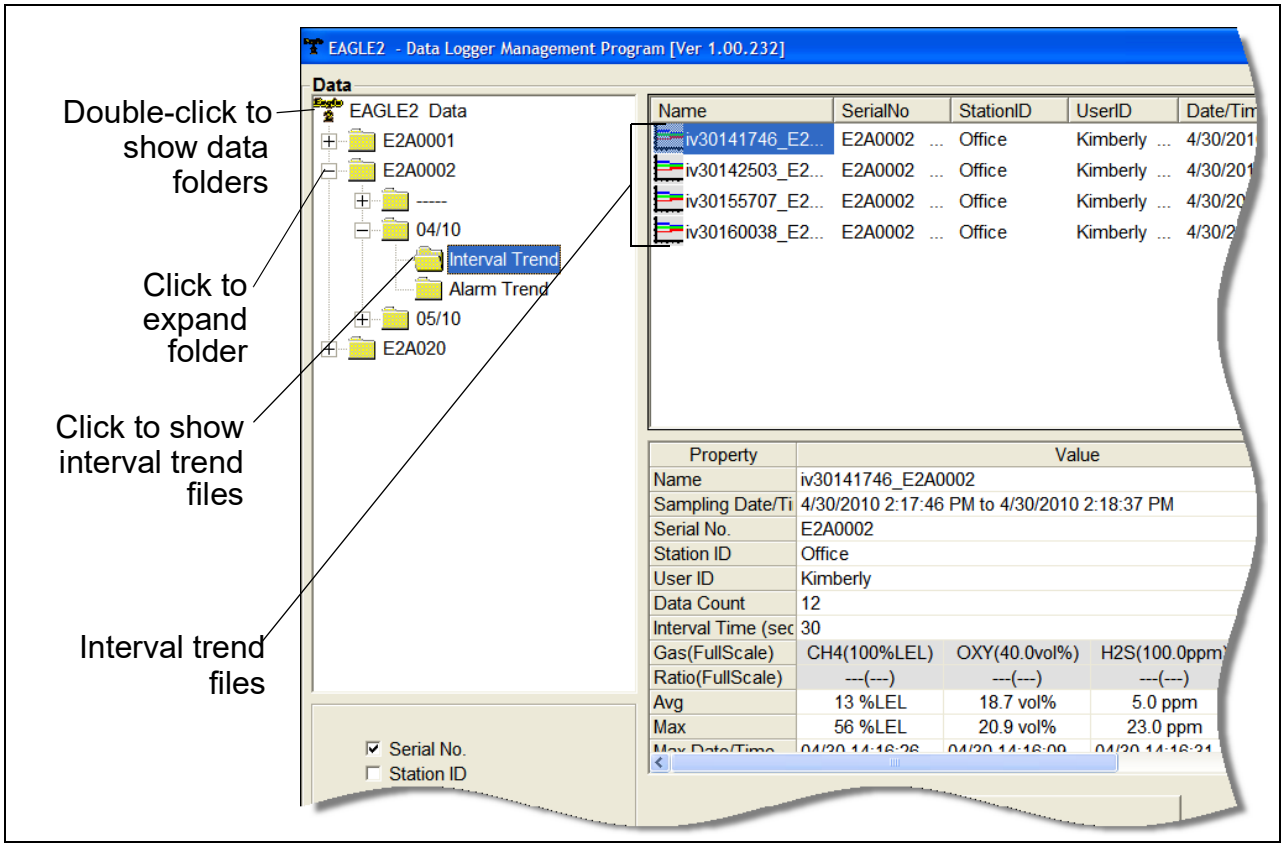


Figure 10: Data Window, Basic Data Organization

2. Click the selection box or boxes in the lower left corner to organize the data as desired. The data may be organized by one or more of the following: serial number, station ID, or user ID.

NOTE: In the examples that follow, the data will be shown organized by serial number. Your Data window may appear slightly different. The following examples also show the combustible channel as “CH4”. The catalytic combustible channel may be configured for a different gas. See the Eagle 2 Operator’s Manual for details regarding the configuration of the catalytic combustible channel.

Calibration History Data

The Eagle 2 is capable of saving calibration information for up to the 100 most recent calibrations. This calibration history is retrieved by the Data Logger Management Program when data is downloaded from the Eagle 2 using either the **Complete Download** download command or the **Download Logger Data** download command.

Instrument calibration information is also available in the Last Calibration Window. The information regarding the most recent successful calibration for each downloaded instrument along with whether or not an instrument is due for calibration can be accessed using the **Last Calibration** button on the right side of the program window. See “Chapter 6: Last Calibration Window” on page 46 for a complete description of the information that can be accessed by the **Last Calibration** button.

All downloaded calibration information for all downloaded instruments is available in the Calibration History folders in the Data Window. This information is saved in a Calibration History Folder that is located in an untitled folder for each instrument. The calibration history files are differentiated by instrument. The calibration information available here is more comprehensive than that in the Last Calibration Window. The calibration information for all calibrations downloaded, whether successful or not, is saved instead of just the most recent successful calibration for each instrument.

To view, print, or export the calibration history for any instrument in the database:

1. With the software already launched, click the **Data** control button along the right side of the program window. The Data Window will appear.

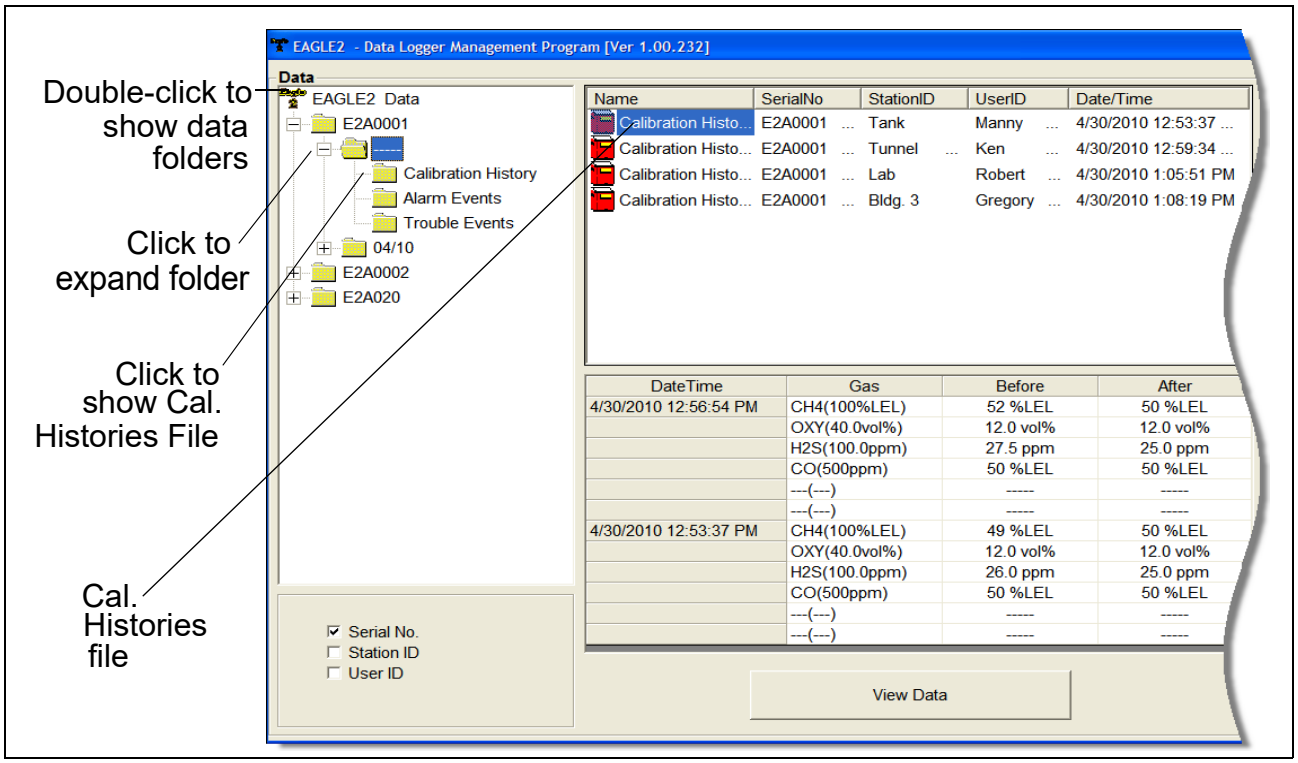
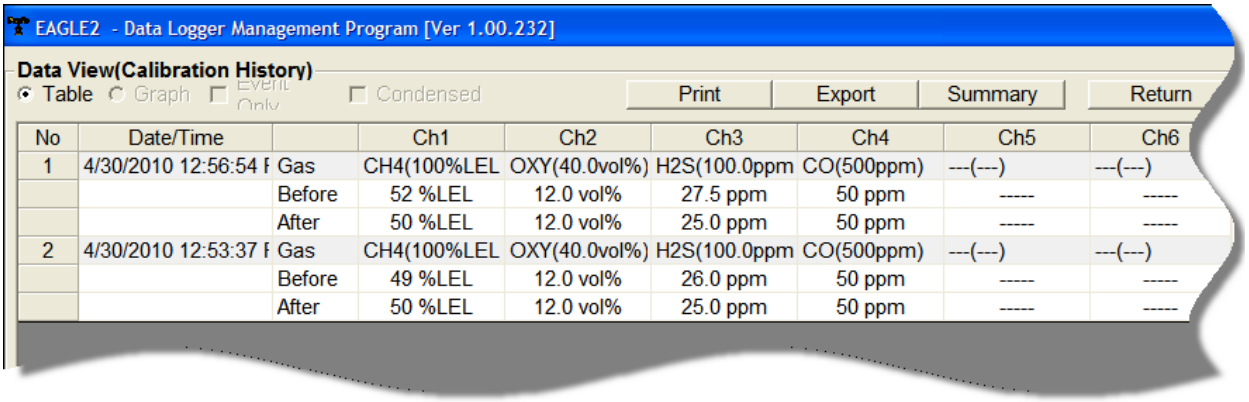


Figure 11: Data Window - Selecting Calibration History Files

2. If necessary, double-click the Eagle 2 icon in the top of the Data Window’s upper left frame to see the folders of downloaded data.
3. Find your instrument by serial number, then click the expanded view symbol (+) of or double-click the serial number folder to view the contents.The top folder is untitled and contains the Calibration History Folder along with folders for alarm events and trouble events. The rest of the folders

contain folders for the interval trend files and alarm trend files and are named and organized by date (month/year).

4. Click the expanded view symbol (+) of or double-click the untitled folder. The Calibration History folder will appear below the untitled folder along with the Alarm Events and Trouble Events folders.
5. Click the Calibration History folder. The Calibration Histories file or files for that instrument will appear in the top right frame. If multiple Station ID's or User ID's are used for an instrument, then more than one Calibration Histories file will appear.
6. Click a file to select it. The first two calibrations saved will be shown in the bottom right frame along with the total number of calibrations saved if it is more than two.
7. To view the Calibration Histories file in table format, double click the Calibration Histories file or click the **View Data** button. Calibration Histories files can only be viewed in table format.



No	Date/Time		Ch1	Ch2	Ch3	Ch4	Ch5	Ch6
1	4/30/2010 12:56:54 F	Gas	CH4(100%LEL	OXY(40.0vol%)	H2S(100.0ppm	CO(500ppm)	---(---)	---(---)
		Before	52 %LEL	12.0 vol%	27.5 ppm	50 ppm	-----	-----
		After	50 %LEL	12.0 vol%	25.0 ppm	50 ppm	-----	-----
2	4/30/2010 12:53:37 F	Gas	CH4(100%LEL	OXY(40.0vol%)	H2S(100.0ppm	CO(500ppm)	---(---)	---(---)
		Before	49 %LEL	12.0 vol%	26.0 ppm	50 ppm	-----	-----
		After	50 %LEL	12.0 vol%	25.0 ppm	50 ppm	-----	-----

Figure 12: Data View, Calibration History

8. If you click the **Summary** button, the Data Window will split into two frames one above the other with the calibration history list in the lower frame and the summary information shown in the upper frame. The summary information is the instrument serial number, station ID, user ID, and the last download date. To return to the one frame format, click **Summary** again.
9. If you want to print the data, click the **Print** button. A Printer List dialog box will appear for you to select a printer.

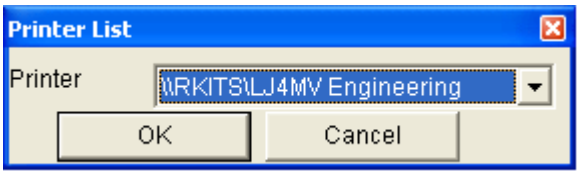


Figure 13: Printer List

10. Select a printer and click **OK** to print the data.

11. To export the data for use in another application, for example a spreadsheet or database, click the **Export** button. A “Save As” dialog box will appear for you to specify the filename, file type, and file location. The default file type is “.csv” (comma-separated values).

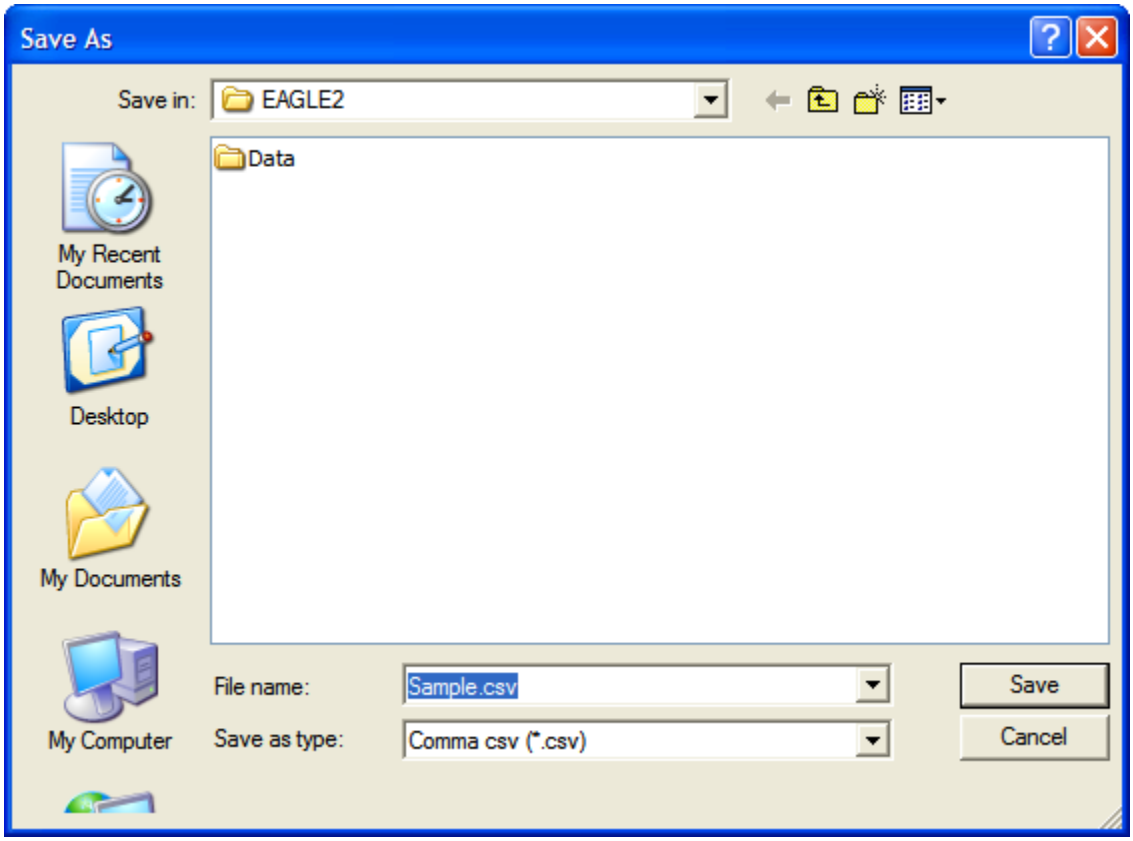


Figure 14: Save as Dialog Box

After specifying the file name, file type, and file location click the **Save** button to save the file to the specified location.

12. To go back and view other data, click the **Return** button in the upper right corner of the Data Window or the **Data** control button on the right side of the program window and select the data you want to view.

Event Data

The Eagle 2 not only saves trend files which include logged data at scheduled times, but also saves the 100 most recent alarm events and the 100 most recent trouble events. When an instrument is downloaded, the Eagle 2 Data Logger Management Program will retrieve these events from an instrument and save them in alarm event files and trouble event files for each instrument that is downloaded.

Alarm event files save the time, instrument channel, gas, and alarm type of every gas alarm event that occurs on a particular instrument. Warning (low alarm), Alarm (high alarm), STEL, TWA, and overscale events are saved.

Trouble event files note the time, instrument channel, whether the event is an instrument system failure or sensor failure and the specific type of failure. Calibration failures, dead battery alarms, and sensor failures are among the trouble events that are saved.

To view, print, or export the event data for any instrument in the database:

1. With the program already launched, click the **Data** control button along the right side of the program window. The Data Window will appear.

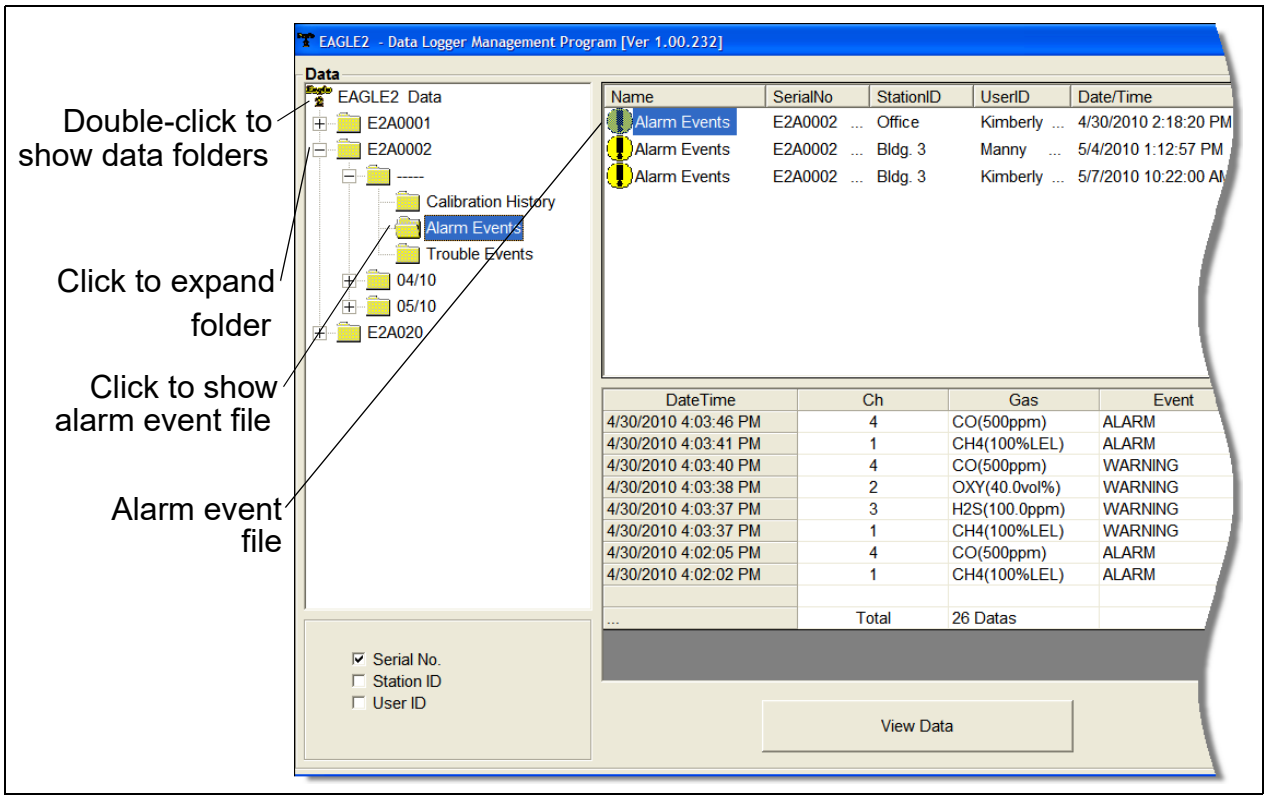
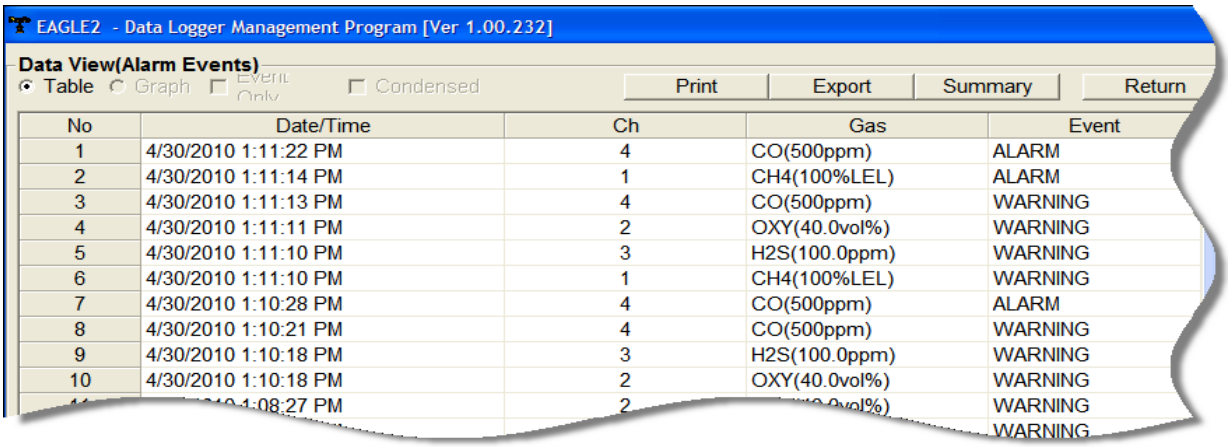


Figure 15: Data Window - Selecting Event Data Files

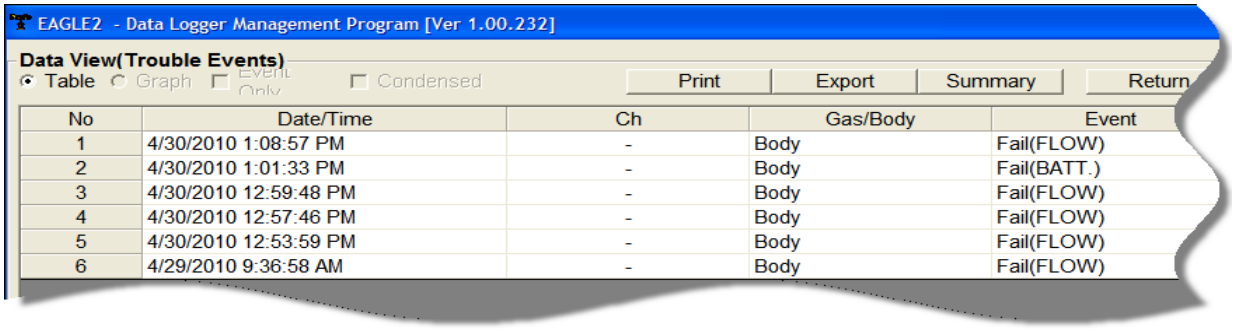
2. If necessary, double-click the Eagle 2 icon in the top of the Data Window's upper left frame to see the folders of downloaded data.
3. Find your instrument by serial number, then click the expanded view symbol (+) of or double-click the serial number folder to view the contents.The top folder is untitled and contains the Alarm Events Folder and Trouble Events Folder along with the Calibration History Folder. The rest of the folders contain folders for the interval trend files and alarm trend files and are named and organized by date (month/year).

4. Click the expanded view symbol (+) of or double-click the untitled folder. The Alarm Events Folder and Trouble Events Folder will appear below the untitled folder along with the Calibration History Folder.
5. Click the Alarm Events or Trouble Events folder. One or more alarm or trouble event files will appear in the top right frame. An Alarm Events Folder has been opened in the example in Figure 15. If multiple User IDs or Station IDs are used for an instrument, then more than one event file will appear.
6. Click the desired event file to select it. An event list will appear in the bottom right frame with the date, time, channel, gas for an alarm file or general failure type for a trouble file, and specific event type for the first ten events saved in the selected file. If more than ten events are saved, the first eight events are shown and the total number of events in the file is shown at the bottom of the list (see Figure 15).
7. Click the **View Data** button at the bottom of the Data Window or double-click the event file name to open the file and view it in table format. Event files can only be viewed in table format.



No	Date/Time	Ch	Gas	Event
1	4/30/2010 1:11:22 PM	4	CO(500ppm)	ALARM
2	4/30/2010 1:11:14 PM	1	CH4(100%LEL)	ALARM
3	4/30/2010 1:11:13 PM	4	CO(500ppm)	WARNING
4	4/30/2010 1:11:11 PM	2	OXY(40.0vol%)	WARNING
5	4/30/2010 1:11:10 PM	3	H2S(100.0ppm)	WARNING
6	4/30/2010 1:11:10 PM	1	CH4(100%LEL)	WARNING
7	4/30/2010 1:10:28 PM	4	CO(500ppm)	ALARM
8	4/30/2010 1:10:21 PM	4	CO(500ppm)	WARNING
9	4/30/2010 1:10:18 PM	3	H2S(100.0ppm)	WARNING
10	4/30/2010 1:10:18 PM	2	OXY(40.0vol%)	WARNING
	1:08:27 PM	2	vol%)	WARNING
				WARNING

Figure 16: Data View - Alarm Events



No	Date/Time	Ch	Gas/Body	Event
1	4/30/2010 1:08:57 PM	-	Body	Fail(FLOW)
2	4/30/2010 1:01:33 PM	-	Body	Fail(BATT.)
3	4/30/2010 12:59:48 PM	-	Body	Fail(FLOW)
4	4/30/2010 12:57:46 PM	-	Body	Fail(FLOW)
5	4/30/2010 12:53:59 PM	-	Body	Fail(FLOW)
6	4/29/2010 9:36:58 AM	-	Body	Fail(FLOW)

Figure 17: Data View - Trouble Events

8. If you click the **Summary** button, the Data Window will split into two frames one above the other with the event list in the lower frame and the summary information shown in the upper frame. The summary information is the same as the information shown in the upper right frame in Figure 15. The summary information is the instrument serial number, station ID, user ID, and the last download date. To return to the one frame format, click **Summary** again.

9. If you want to print the data, click the **Print** button. A Printer List dialog box will appear for you to select a printer.

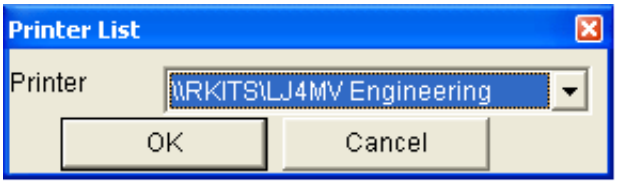


Figure 18: Printer List

10. Select a printer and click **OK** to print the data.
11. To export the data for use in another application, for example a spreadsheet or database, click the **Export** button. A "Save As" dialog box will appear for you to specify the filename and file location. The default file type is ".csv" (comma-separated values).

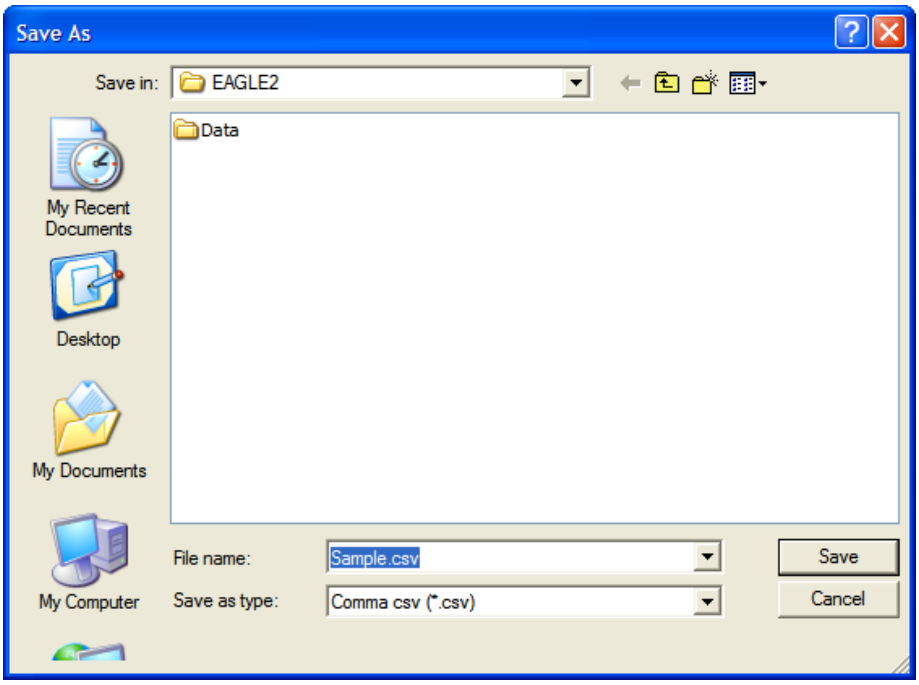


Figure 19: Save as Dialog Box

12. After specifying the file name, file location, and file type click the **Save** button to save the file to the specified location.
13. To go back and view other data, click the **Return** button in the upper right corner of the Data Window or the **Data** control button on the right side of the program window and select the data you want to view.

Interval Trend Data

Average gas concentrations over the user defined interval trend time are logged in the interval trend data files. The interval trend time is set using either the Data Log Interval menu item in the Eagle 2 Setup Mode (see the Eagle 2 Manual) or the Interval Trend Time item in the Set window (see page 55). Events such as gas alarms or sensor failures are saved in the interval trend data file when they occur.

An interval trend data file is created and saved in the Eagle 2 when the instrument is turned *off* or when a user ID, station ID, or catalytic combustible channel gas configuration (using the relative response feature in Display Mode) is changed during operation. The serial number, user ID, station ID, and catalytic combustible channel configuration that are entered in the instrument when it is turned *on* or that are updated during operation are saved for the corresponding interval trend file. If the instrument's user ID or station ID are changed during operation, any interval trend files that result from subsequent operating sessions will have the new user ID or station ID saved in them. If the catalytic combustible channel gas configuration is changed during operation using the relative response feature in Display Mode, the new configuration will be saved in the data until it is changed or the unit is turned off. Any catalytic combustible channel gas configuration changes made using the relative response feature in Display Mode are cleared when the unit is turned off and the unit returns to its original configuration when it is turned on.

The data may be viewed in table format or in graph format (if at least 5 scheduled data points have been logged, not including events). If an interval data file has fewer than five scheduled data points, the graph controls are not functional and the data cannot be graphed.

To view and perform desired operations with the interval trend files:

1. With the program already launched, click the **Data** control button along the right side of the program window. The Data Window will appear.

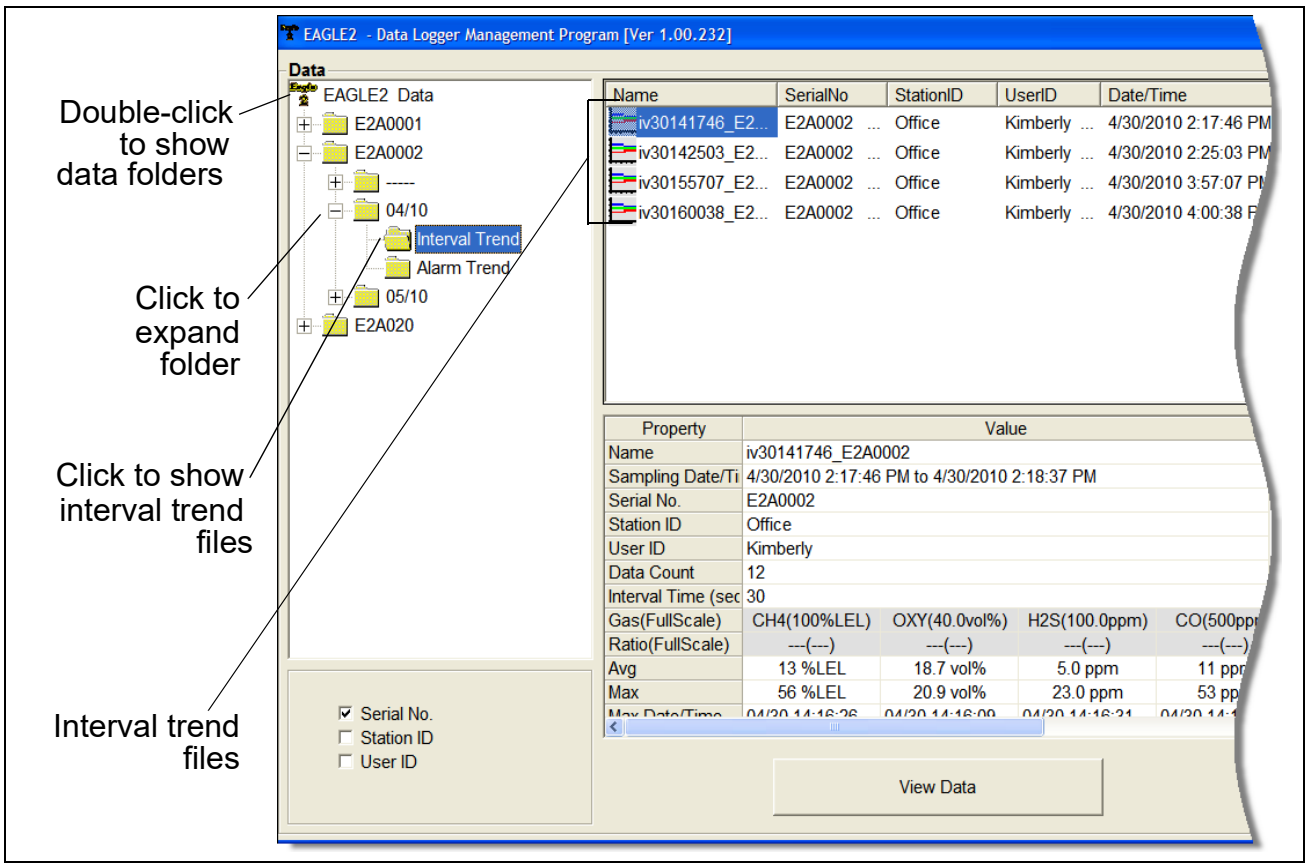
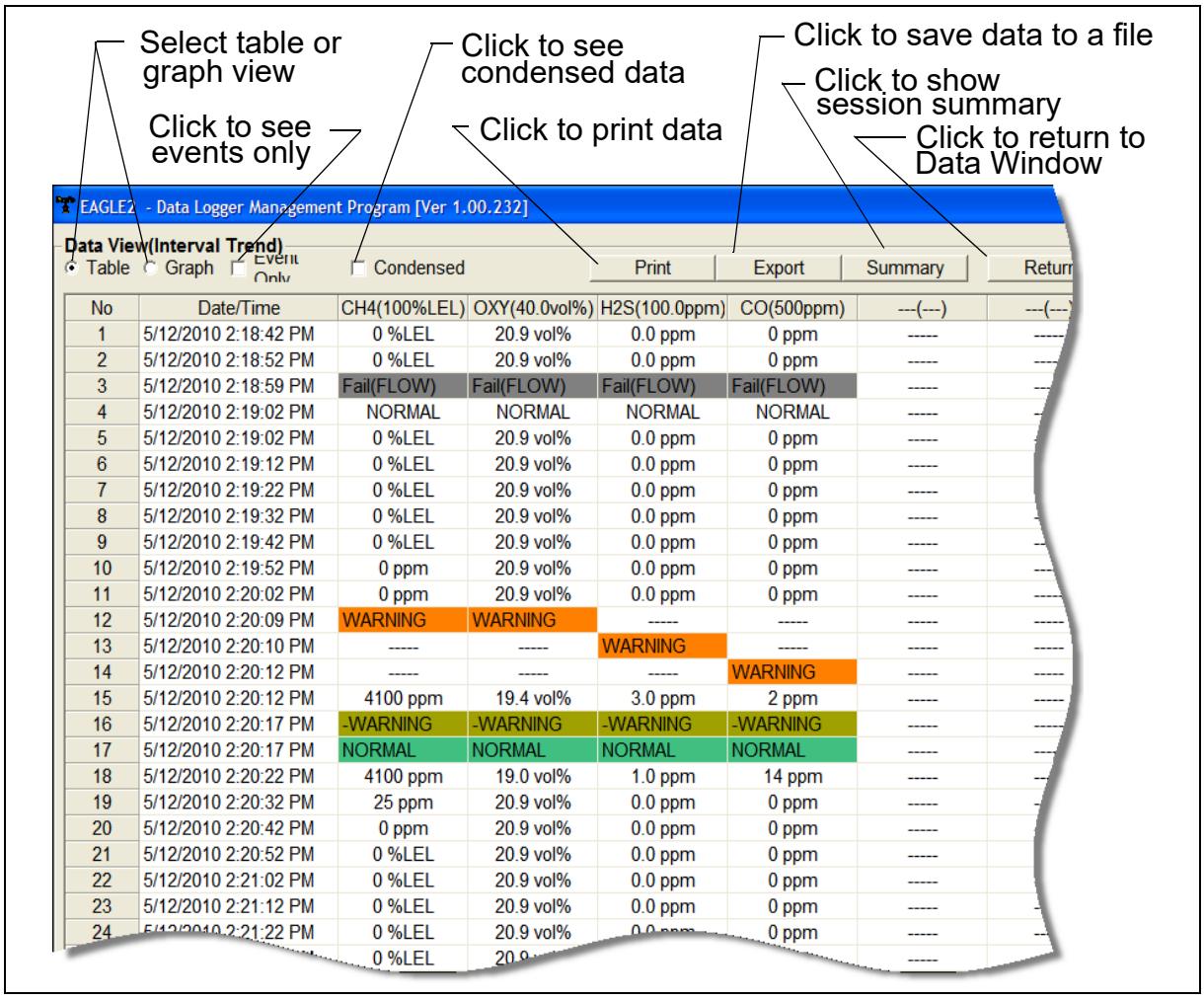


Figure 20: Data Window - Selecting Interval Trend Data Files

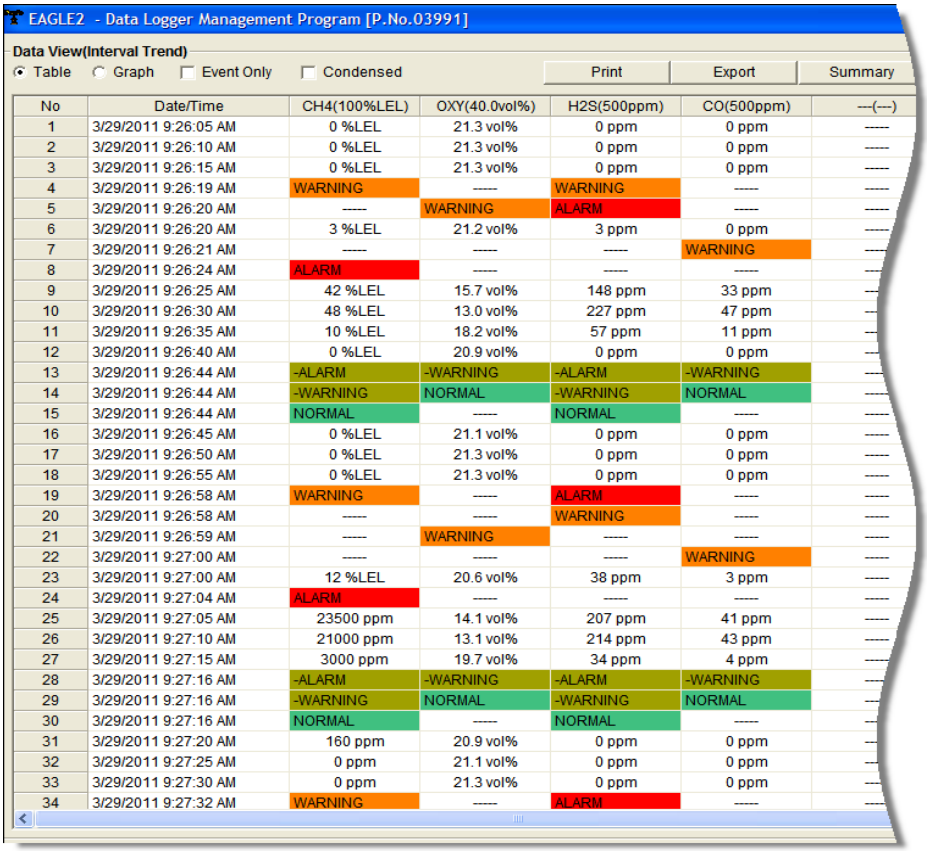
2. If necessary, double-click the Eagle 2 icon in the top of the Data Window's upper left frame to see the folders of downloaded data.
3. Find your instrument by serial number, then click the expanded view symbol (+) of or double-click the serial number folder to view the contents.The top folder is untitled and contains the Calibration History, Alarm Event, and Trouble Event folders. The rest of the folders contain folders for the interval trend files and alarm trend files and are named and organized by date (month/year).
4. Click the expanded view symbol (+) of or double-click the dated folder whose contents you want to see.
5. Click on the Interval Trend Folder. In the upper right frame of the Data Window, a list of file names will appear in the Name column. A prefix of "iv" indicates an interval trend data file.
6. Click one of the interval trend data file names. A summary will appear in the bottom right frame with instrument and alarm setting information. If you want to view, graph, print, or export the interval trend data, double-click the filename or click the **View Data** button at the bottom of the window.
7. Interval trend data can be viewed in either table or graph format by selecting the Table or Graph selection buttons. The example below in Figure 21 is shown in table format.



No	Date/Time	CH4(100%LEL)	OXY(40.0vol%)	H2S(100.0ppm)	CO(500ppm)	---(---)	---(---
1	5/12/2010 2:18:42 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	-----	-----
2	5/12/2010 2:18:52 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	-----	-----
3	5/12/2010 2:18:59 PM	Fail(FLOW)	Fail(FLOW)	Fail(FLOW)	Fail(FLOW)	-----	-----
4	5/12/2010 2:19:02 PM	NORMAL	NORMAL	NORMAL	NORMAL	-----	-----
5	5/12/2010 2:19:02 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	-----	-----
6	5/12/2010 2:19:12 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	-----	-----
7	5/12/2010 2:19:22 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	-----	-----
8	5/12/2010 2:19:32 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	-----	-----
9	5/12/2010 2:19:42 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	-----	-----
10	5/12/2010 2:19:52 PM	0 ppm	20.9 vol%	0.0 ppm	0 ppm	-----	-----
11	5/12/2010 2:20:02 PM	0 ppm	20.9 vol%	0.0 ppm	0 ppm	-----	-----
12	5/12/2010 2:20:09 PM	WARNING	WARNING	-----	-----	-----	-----
13	5/12/2010 2:20:10 PM	-----	-----	WARNING	-----	-----	-----
14	5/12/2010 2:20:12 PM	-----	-----	-----	WARNING	-----	-----
15	5/12/2010 2:20:12 PM	4100 ppm	19.4 vol%	3.0 ppm	2 ppm	-----	-----
16	5/12/2010 2:20:17 PM	-WARNING	-WARNING	-WARNING	-WARNING	-----	-----
17	5/12/2010 2:20:17 PM	NORMAL	NORMAL	NORMAL	NORMAL	-----	-----
18	5/12/2010 2:20:22 PM	4100 ppm	19.0 vol%	1.0 ppm	14 ppm	-----	-----
19	5/12/2010 2:20:32 PM	25 ppm	20.9 vol%	0.0 ppm	0 ppm	-----	-----
20	5/12/2010 2:20:42 PM	0 ppm	20.9 vol%	0.0 ppm	0 ppm	-----	-----
21	5/12/2010 2:20:52 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	-----	-----
22	5/12/2010 2:21:02 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	-----	-----
23	5/12/2010 2:21:12 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	-----	-----
24	5/12/2010 2:21:22 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	-----	-----

Figure 21: Interval Trend Data in Table Format

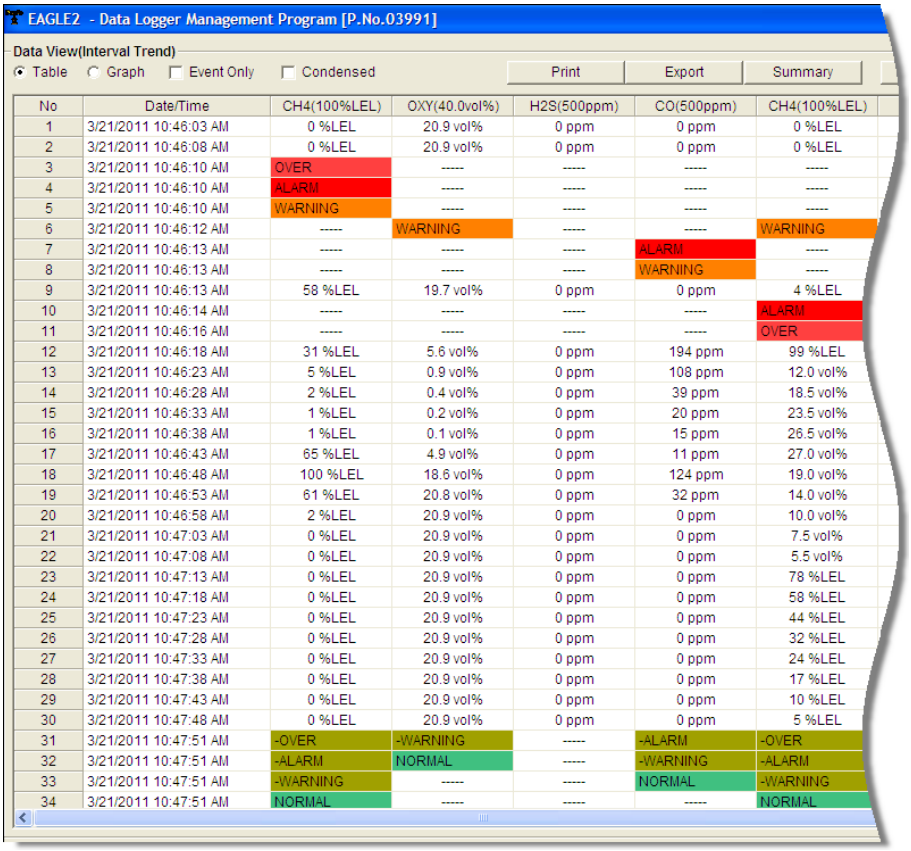
- In table format, the interval trend data is shown as the average gas readings over the user defined interval trend time. So if the data logging session started at 4:13:38 PM and the interval time is set to 1 minute, then the readings logged at 4:14:38 PM are the average reading for each channel over that one minute period.
- Events are displayed on the screen under the channel in which they occur and with the time of the event. Events are displayed whether they occurred at scheduled log times or in between them. Events include gas alarms such as a warning condition, trouble conditions such as a sensor failure, and an indication that the unit is returning to "normal" condition after an alarm has been reset using the **POWER ENTER RESET** button on the Eagle 2.
- If you click the **Summary** button, the Data Window will split into two frames, one above the other, with the data table in the lower frame and the summary information shown in the upper frame. The summary information is the same as the one shown in the lower right frame in Figure 20. To return to the one frame format, click **Summary** again.
- The catalytic combustible channel can be recorded in %LEL, ppm, or %volume units depending on the instrument setting. When viewing the interval trend data in table format, the units are displayed as the unit the reading was recorded in.



No	Date/Time	CH4(100%LEL)	OXY(40.0vol%)	H2S(500ppm)	CO(500ppm)	---(---)
1	3/29/2011 9:26:05 AM	0 %LEL	21.3 vol%	0 ppm	0 ppm	-----
2	3/29/2011 9:26:10 AM	0 %LEL	21.3 vol%	0 ppm	0 ppm	-----
3	3/29/2011 9:26:15 AM	0 %LEL	21.3 vol%	0 ppm	0 ppm	-----
4	3/29/2011 9:26:19 AM	WARNING	-----	WARNING	-----	-----
5	3/29/2011 9:26:20 AM	-----	WARNING	ALARM	-----	-----
6	3/29/2011 9:26:20 AM	3 %LEL	21.2 vol%	3 ppm	0 ppm	-----
7	3/29/2011 9:26:21 AM	-----	-----	-----	WARNING	-----
8	3/29/2011 9:26:24 AM	ALARM	-----	-----	-----	-----
9	3/29/2011 9:26:25 AM	42 %LEL	15.7 vol%	148 ppm	33 ppm	-----
10	3/29/2011 9:26:30 AM	48 %LEL	13.0 vol%	227 ppm	47 ppm	-----
11	3/29/2011 9:26:35 AM	10 %LEL	18.2 vol%	57 ppm	11 ppm	-----
12	3/29/2011 9:26:40 AM	0 %LEL	20.9 vol%	0 ppm	0 ppm	-----
13	3/29/2011 9:26:44 AM	-ALARM	-WARNING	-ALARM	-WARNING	-----
14	3/29/2011 9:26:44 AM	-WARNING	NORMAL	-WARNING	NORMAL	-----
15	3/29/2011 9:26:44 AM	NORMAL	-----	NORMAL	-----	-----
16	3/29/2011 9:26:45 AM	0 %LEL	21.1 vol%	0 ppm	0 ppm	-----
17	3/29/2011 9:26:50 AM	0 %LEL	21.3 vol%	0 ppm	0 ppm	-----
18	3/29/2011 9:26:55 AM	0 %LEL	21.3 vol%	0 ppm	0 ppm	-----
19	3/29/2011 9:26:58 AM	WARNING	-----	ALARM	-----	-----
20	3/29/2011 9:26:58 AM	-----	-----	WARNING	-----	-----
21	3/29/2011 9:26:59 AM	-----	WARNING	-----	-----	-----
22	3/29/2011 9:27:00 AM	-----	-----	-----	WARNING	-----
23	3/29/2011 9:27:00 AM	12 %LEL	20.6 vol%	38 ppm	3 ppm	-----
24	3/29/2011 9:27:04 AM	ALARM	-----	-----	-----	-----
25	3/29/2011 9:27:05 AM	23500 ppm	14.1 vol%	207 ppm	41 ppm	-----
26	3/29/2011 9:27:10 AM	21000 ppm	13.1 vol%	214 ppm	43 ppm	-----
27	3/29/2011 9:27:15 AM	3000 ppm	19.7 vol%	34 ppm	4 ppm	-----
28	3/29/2011 9:27:16 AM	-ALARM	-WARNING	-ALARM	-WARNING	-----
29	3/29/2011 9:27:16 AM	-WARNING	NORMAL	-WARNING	NORMAL	-----
30	3/29/2011 9:27:16 AM	NORMAL	-----	NORMAL	-----	-----
31	3/29/2011 9:27:20 AM	160 ppm	20.9 vol%	0 ppm	0 ppm	-----
32	3/29/2011 9:27:25 AM	0 ppm	21.1 vol%	0 ppm	0 ppm	-----
33	3/29/2011 9:27:30 AM	0 ppm	21.3 vol%	0 ppm	0 ppm	-----
34	3/29/2011 9:27:32 AM	WARNING	-----	ALARM	-----	-----

Figure 22: Interval Trend Data Table Format (4 Gas)

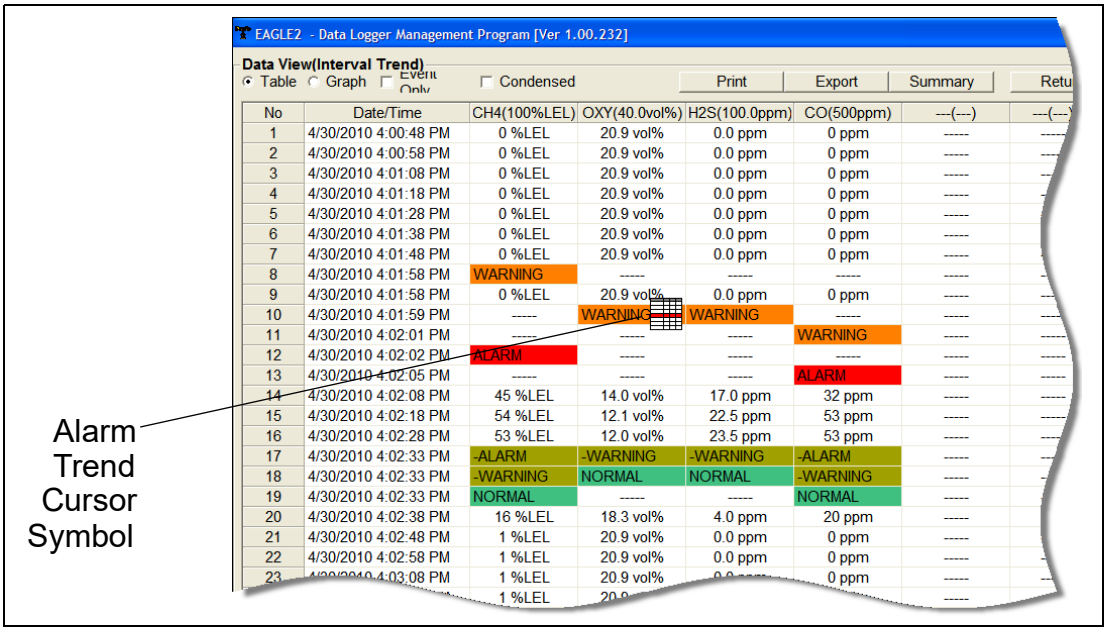
- If installed, an infrared methane or hydrocarbon channel records data in %LEL and/or % volume units depending on whether the channel is configured as a % LEL channel or a %LEL/ % volume autoranging channel. When viewing the interval trend data in table format, the units are displayed as the unit the reading was recorded in. In the following figure, the first channel is a catalytic LEL channel and the fifth channel is an IR autoranging CH_4 channel.



No	Date/Time	CH4(100%LEL)	OXY(40.0vol%)	H2S(500ppm)	CO(500ppm)	CH4(100%LEL)
1	3/21/2011 10:46:03 AM	0 %LEL	20.9 vol%	0 ppm	0 ppm	0 %LEL
2	3/21/2011 10:46:08 AM	0 %LEL	20.9 vol%	0 ppm	0 ppm	0 %LEL
3	3/21/2011 10:46:10 AM	OVER	-----	-----	-----	-----
4	3/21/2011 10:46:10 AM	ALARM	-----	-----	-----	-----
5	3/21/2011 10:46:10 AM	WARNING	-----	-----	-----	-----
6	3/21/2011 10:46:12 AM	-----	WARNING	-----	-----	WARNING
7	3/21/2011 10:46:13 AM	-----	-----	-----	ALARM	-----
8	3/21/2011 10:46:13 AM	-----	-----	-----	WARNING	-----
9	3/21/2011 10:46:13 AM	58 %LEL	19.7 vol%	0 ppm	0 ppm	4 %LEL
10	3/21/2011 10:46:14 AM	-----	-----	-----	-----	ALARM
11	3/21/2011 10:46:16 AM	-----	-----	-----	-----	OVER
12	3/21/2011 10:46:18 AM	31 %LEL	5.6 vol%	0 ppm	194 ppm	99 %LEL
13	3/21/2011 10:46:23 AM	5 %LEL	0.9 vol%	0 ppm	108 ppm	12.0 vol%
14	3/21/2011 10:46:28 AM	2 %LEL	0.4 vol%	0 ppm	39 ppm	18.5 vol%
15	3/21/2011 10:46:33 AM	1 %LEL	0.2 vol%	0 ppm	20 ppm	23.5 vol%
16	3/21/2011 10:46:38 AM	1 %LEL	0.1 vol%	0 ppm	15 ppm	26.5 vol%
17	3/21/2011 10:46:43 AM	65 %LEL	4.9 vol%	0 ppm	11 ppm	27.0 vol%
18	3/21/2011 10:46:48 AM	100 %LEL	18.6 vol%	0 ppm	124 ppm	19.0 vol%
19	3/21/2011 10:46:53 AM	61 %LEL	20.8 vol%	0 ppm	32 ppm	14.0 vol%
20	3/21/2011 10:46:58 AM	2 %LEL	20.9 vol%	0 ppm	0 ppm	10.0 vol%
21	3/21/2011 10:47:03 AM	0 %LEL	20.9 vol%	0 ppm	0 ppm	7.5 vol%
22	3/21/2011 10:47:08 AM	0 %LEL	20.9 vol%	0 ppm	0 ppm	5.5 vol%
23	3/21/2011 10:47:13 AM	0 %LEL	20.9 vol%	0 ppm	0 ppm	78 %LEL
24	3/21/2011 10:47:18 AM	0 %LEL	20.9 vol%	0 ppm	0 ppm	58 %LEL
25	3/21/2011 10:47:23 AM	0 %LEL	20.9 vol%	0 ppm	0 ppm	44 %LEL
26	3/21/2011 10:47:28 AM	0 %LEL	20.9 vol%	0 ppm	0 ppm	32 %LEL
27	3/21/2011 10:47:33 AM	0 %LEL	20.9 vol%	0 ppm	0 ppm	24 %LEL
28	3/21/2011 10:47:38 AM	0 %LEL	20.9 vol%	0 ppm	0 ppm	17 %LEL
29	3/21/2011 10:47:43 AM	0 %LEL	20.9 vol%	0 ppm	0 ppm	10 %LEL
30	3/21/2011 10:47:48 AM	0 %LEL	20.9 vol%	0 ppm	0 ppm	5 %LEL
31	3/21/2011 10:47:51 AM	-OVER	-WARNING	-----	-ALARM	-OVER
32	3/21/2011 10:47:51 AM	-ALARM	NORMAL	-----	-WARNING	-ALARM
33	3/21/2011 10:47:51 AM	-WARNING	-----	-----	NORMAL	-WARNING
34	3/21/2011 10:47:51 AM	NORMAL	-----	-----	-----	NORMAL

Figure 23: Interval Trend Data Table Format (Autoranging)

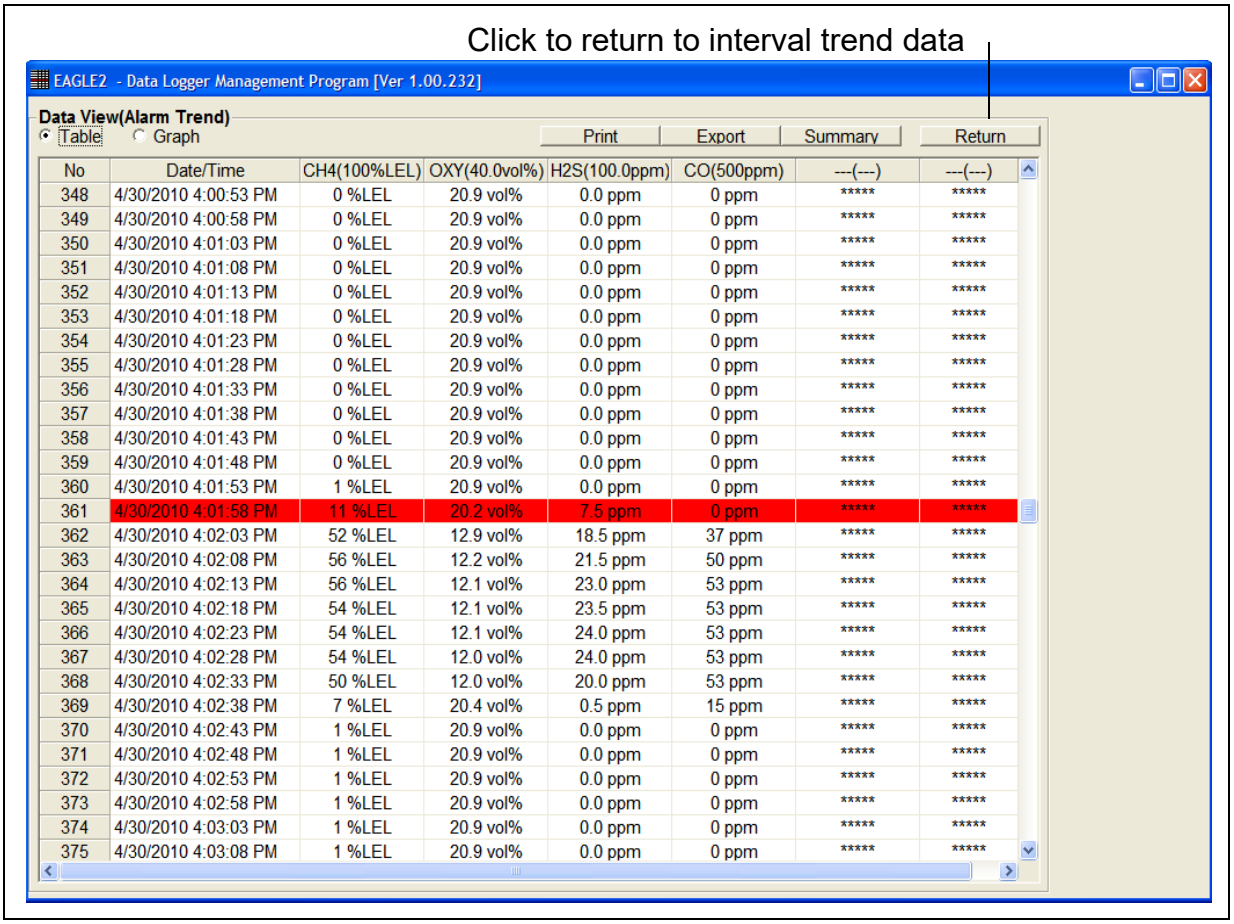
8. When the data is viewed in table format, if you move the cursor over an alarm event, it will change into a small symbol that looks like an alarm trend data file while it is kept over the alarm event.



No	Date/Time	CH4(100%LEL)	OXY(40.0vol%)	H2S(100.0ppm)	CO(500ppm)	---(---)
1	4/30/2010 4:00:48 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	-----
2	4/30/2010 4:00:58 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	-----
3	4/30/2010 4:01:08 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	-----
4	4/30/2010 4:01:18 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	-----
5	4/30/2010 4:01:28 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	-----
6	4/30/2010 4:01:38 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	-----
7	4/30/2010 4:01:48 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	-----
8	4/30/2010 4:01:58 PM	WARNING	-----	-----	-----	-----
9	4/30/2010 4:01:58 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	-----
10	4/30/2010 4:01:59 PM	-----	WARNING	WARNING	-----	-----
11	4/30/2010 4:02:01 PM	-----	-----	-----	WARNING	-----
12	4/30/2010 4:02:02 PM	ALARM	-----	-----	-----	-----
13	4/30/2010 4:02:05 PM	-----	-----	-----	ALARM	-----
14	4/30/2010 4:02:08 PM	45 %LEL	14.0 vol%	17.0 ppm	32 ppm	-----
15	4/30/2010 4:02:18 PM	54 %LEL	12.1 vol%	22.5 ppm	53 ppm	-----
16	4/30/2010 4:02:28 PM	53 %LEL	12.0 vol%	23.5 ppm	53 ppm	-----
17	4/30/2010 4:02:33 PM	-ALARM	-WARNING	-WARNING	-ALARM	-----
18	4/30/2010 4:02:33 PM	-WARNING	NORMAL	NORMAL	-WARNING	-----
19	4/30/2010 4:02:33 PM	NORMAL	-----	-----	NORMAL	-----
20	4/30/2010 4:02:38 PM	16 %LEL	18.3 vol%	4.0 ppm	20 ppm	-----
21	4/30/2010 4:02:48 PM	1 %LEL	20.9 vol%	0.0 ppm	0 ppm	-----
22	4/30/2010 4:02:58 PM	1 %LEL	20.9 vol%	0.0 ppm	0 ppm	-----
23	4/30/2010 4:03:08 PM	1 %LEL	20.9 vol%	0.0 ppm	0 ppm	-----

Figure 24: Alarm Trend Cursor Symbol

If you click on the event, the corresponding alarm trend data file will be opened in a new window that pops up over the Data Window. No control buttons will be visible along the right side of the new window when an alarm trend data file is displayed in this way. To return to the interval trend data file, click the **Return** button or click the "X" in the upper right corner of the new window to close the window.



No	Date/Time	CH4(100%LEL)	OXY(40.0vol%)	H2S(100.0ppm)	CO(500ppm)	---(---)	---(---)
348	4/30/2010 4:00:53 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
349	4/30/2010 4:00:58 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
350	4/30/2010 4:01:03 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
351	4/30/2010 4:01:08 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
352	4/30/2010 4:01:13 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
353	4/30/2010 4:01:18 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
354	4/30/2010 4:01:23 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
355	4/30/2010 4:01:28 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
356	4/30/2010 4:01:33 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
357	4/30/2010 4:01:38 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
358	4/30/2010 4:01:43 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
359	4/30/2010 4:01:48 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
360	4/30/2010 4:01:53 PM	1 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
361	4/30/2010 4:01:58 PM	11 %LEL	20.2 vol%	7.5 ppm	0 ppm	*****	*****
362	4/30/2010 4:02:03 PM	52 %LEL	12.9 vol%	18.5 ppm	37 ppm	*****	*****
363	4/30/2010 4:02:08 PM	56 %LEL	12.2 vol%	21.5 ppm	50 ppm	*****	*****
364	4/30/2010 4:02:13 PM	56 %LEL	12.1 vol%	23.0 ppm	53 ppm	*****	*****
365	4/30/2010 4:02:18 PM	54 %LEL	12.1 vol%	23.5 ppm	53 ppm	*****	*****
366	4/30/2010 4:02:23 PM	54 %LEL	12.1 vol%	24.0 ppm	53 ppm	*****	*****
367	4/30/2010 4:02:28 PM	54 %LEL	12.0 vol%	24.0 ppm	53 ppm	*****	*****
368	4/30/2010 4:02:33 PM	50 %LEL	12.0 vol%	20.0 ppm	53 ppm	*****	*****
369	4/30/2010 4:02:38 PM	7 %LEL	20.4 vol%	0.5 ppm	15 ppm	*****	*****
370	4/30/2010 4:02:43 PM	1 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
371	4/30/2010 4:02:48 PM	1 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
372	4/30/2010 4:02:53 PM	1 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
373	4/30/2010 4:02:58 PM	1 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
374	4/30/2010 4:03:03 PM	1 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
375	4/30/2010 4:03:08 PM	1 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****

Figure 25: Data Displayed by Alarm Trend Cursor Symbol

9. To view only events in the interval trend data file, click the **Events Only** selection box to select it.
10. To view the interval trend data in condensed form, click the **Condensed** selection box to select it. When the data is condensed, the software shows only important and eventful data as follows:
    - The first and last scheduled data points in the session are shown.
    - If there are more than two consecutive data points with the same readings for all channels, only the first and last of these consecutive data points are shown.
    - All events, such as gas alarms or sensor failures, are shown.
    - For any event, the data point before and after the event is always shown.

11. To view the data in graph format, click the **Graph** selection button. Five or more scheduled data points are required in an interval trend data file to be able to display it in graph format.

NOTE: The data count shown when you have selected an interval trend data file, as in Figure 20 above, can be more than five if you have events, such as the Eagle 2 going into and out of alarm, but you may not have five scheduled data points.

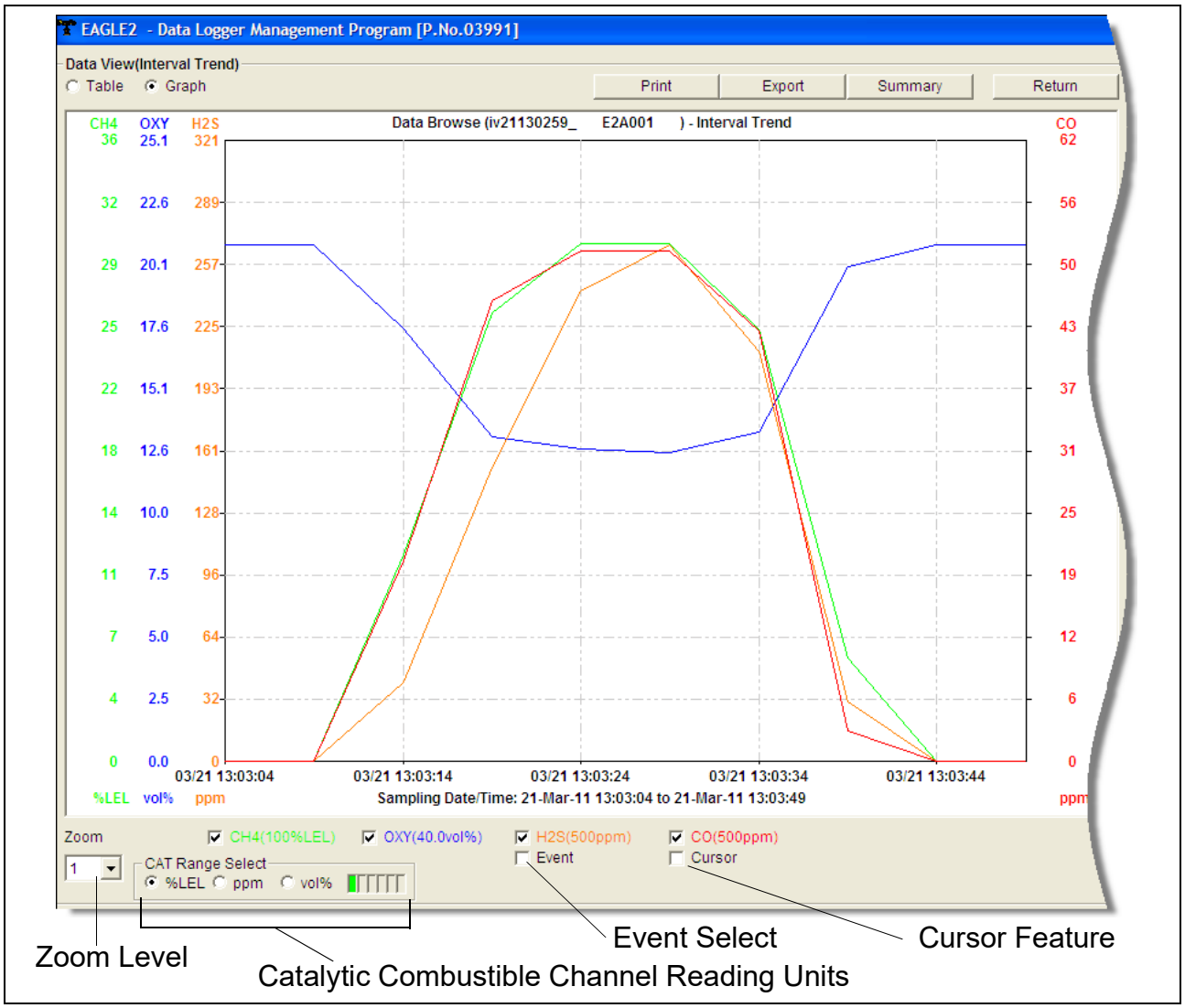


Figure 26: Interval Trend Data in Graph Format

When viewing interval trend data in graph format, you have several options:

- You can choose which gas(es) you want to graph by selecting or deselecting the boxes next to each gas name. The color of the gas name corresponds with its color on the graph and on the scale.
- You can choose the zoom level, or displayed time interval, on the graph. The zoom feature shows greater detail relative to time. Thus, the length of a time division on the graph will depend on both the length of the datalogging session and on the zoom factor. Depending on the length of the data session, data sessions that show changing readings will normally have more choices for zoom levels than sessions that show stable data to allow for viewing of gas reading

changes in greater detail.

- When selected, the Event feature shows on the graph where each channel went into and out of alarm and at what concentration each event occurred.
- When selected, the Cursor feature allows you to display the gas reading and log time for each data point saved on the graph. The number of data points on the graph is minimized depending on the length of a data session by several means including omitting consecutive data points that have the same gas readings. As you use the left and right arrow buttons on your keyboard to move the cursor across the graph horizontally, readings at specific log times are displayed. Use the up and down arrows on the keyboard to move the readings up or down on the screen.
- The catalytic combustible channel can be graphed in %LEL, ppm, or %volume units. While readings can be recorded in any of these units and stored in the same file, those readings may only be graphed in one unit at a time. If %LEL is chosen as the unit, any ppm or %volume data is converted and graphed as %LEL. The user may change back and forth between the units for the graph and still have all data shown. The CAT Range Select box is where the user may select %LEL, ppm, or % volume as the units for the graph. The box just to the right of the selection dots shows what channel the catalytic combustible detector is associated with and what color it is displayed in on the graph. In the example below, the catalytic combustible channel is the first channel and is displayed in green.

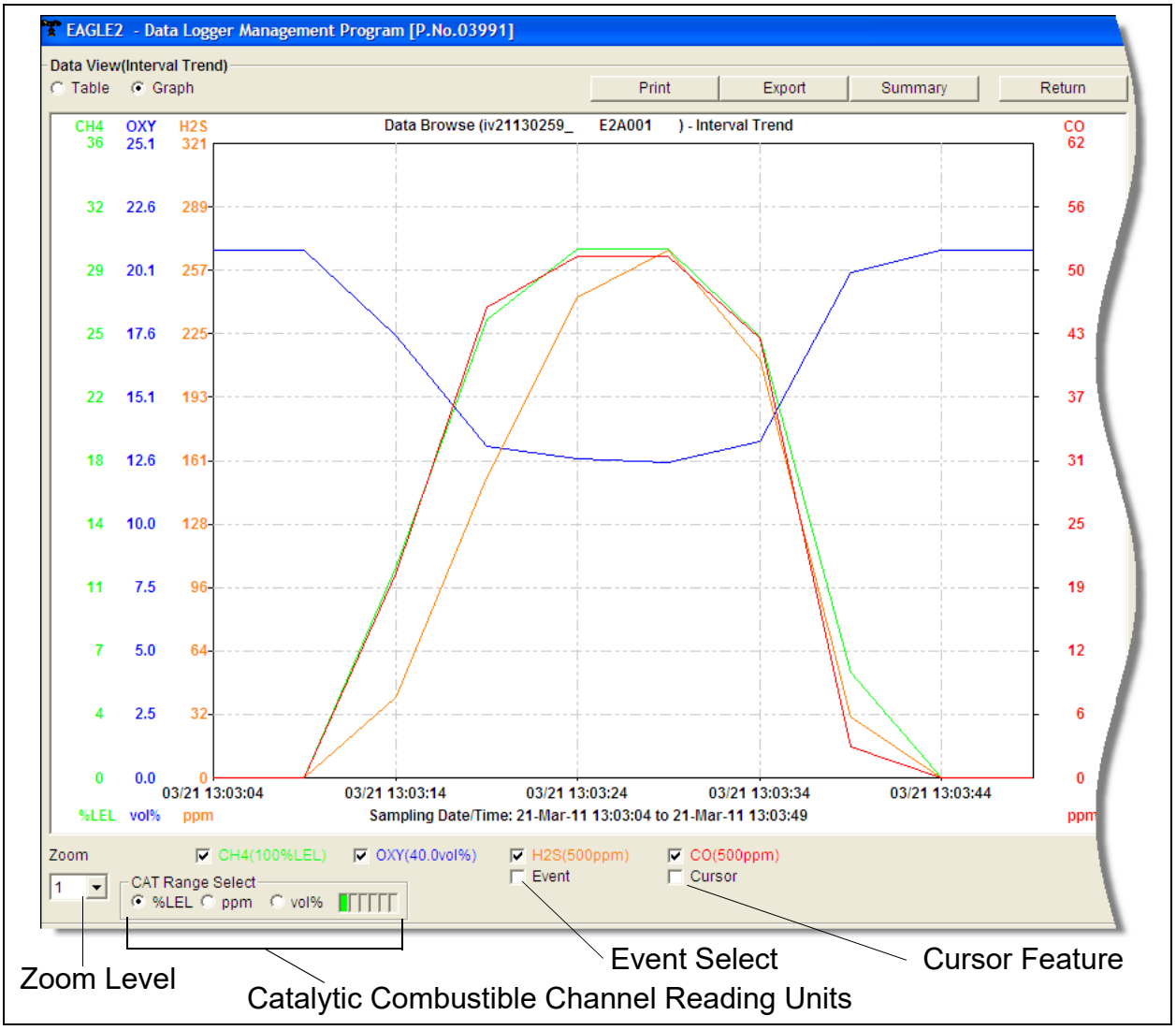


Figure 27: Interval Trend Data in Graph Format

- If installed, an IR HC or CH_4 channel can be graphed in %LEL or % volume in order to accurately depict the full range of the sensor.

If the channel is configured as a %LEL only channel, then data will only be recorded in %LEL and the range will be 0-100% LEL. Any gas concentration above that level will not be recorded.

If the channel is configured as a %LEL/% volume autoranging channel, then data will be recorded in %LEL and % volume where appropriate. It will record data in %LEL up to 100% LEL and then it will start recording data in % volume up to 100% volume. If %LEL is chosen as the graphing units, all data collected for a %LEL only channel will be displayed. Any data collected in an autoranging configuration that exceeds 100% LEL will not be shown. In order to view data above 100% LEL, % volume must be selected. When % volume is selected, all data will be shown in terms of % volume.

The IR Range Select box located in the bottom right corner of the screen is where the unit selection is made for the IR channel. The box next to the selection dots indicates what channel the IR sensor is associated with and what color is used to indicate that channel on the graph. In the example

below, the IR channel is the first channel and its information is displayed in green.

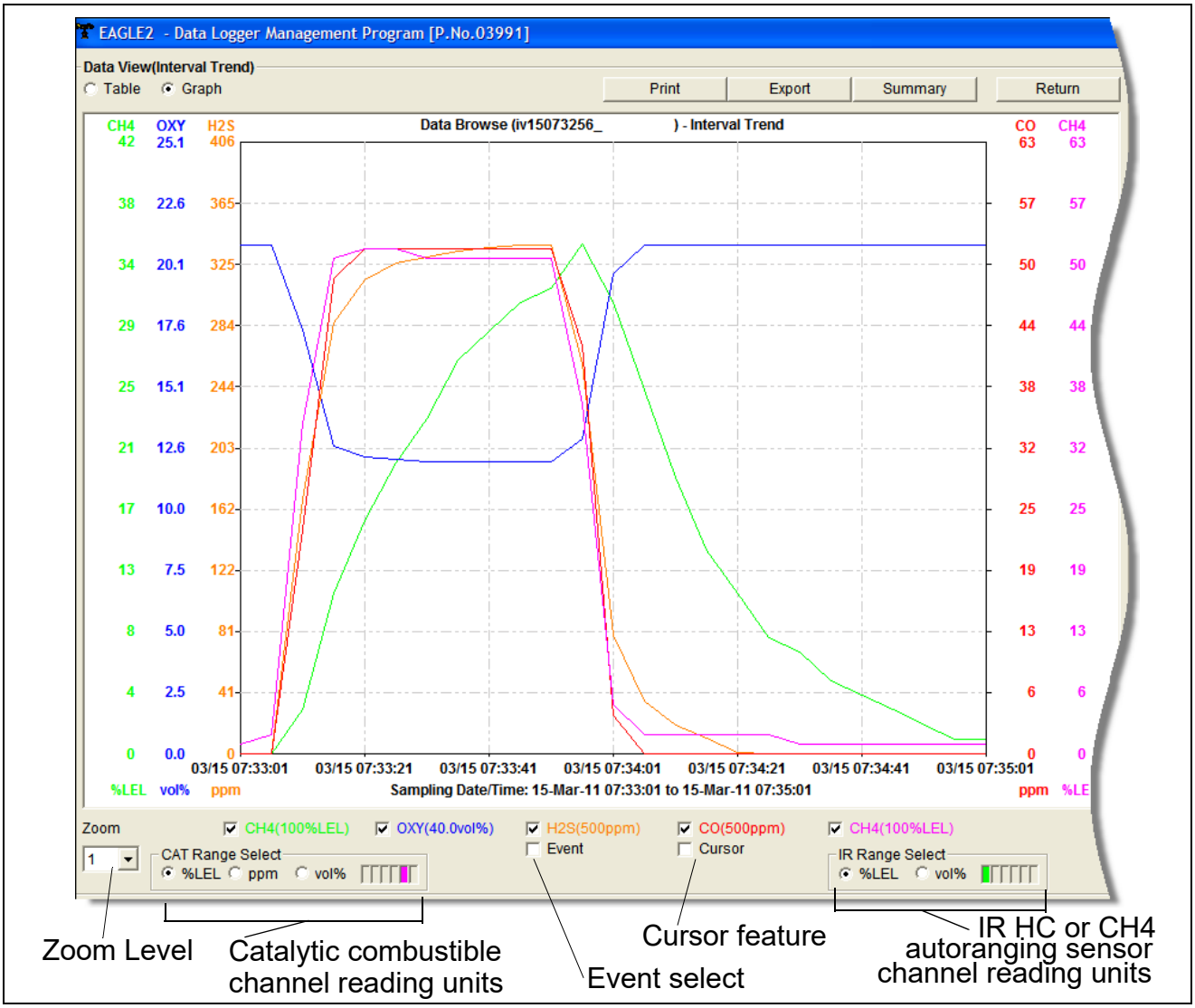


Figure 28: Interval Trend Data in Graph Format With Autoranging

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NOTE: The IR Range Select selection box in the lower right hand corner only appears if an IR HC or CH_4 sensor is installed, is in use, and is set up for autoranging. If an IR HC or CH_4 sensor is not installed, if its channel is turned off, or if the channel is set up for % LEL only, this box will not appear.

- If you click the **Summary** button, the data window will split into two frames one above the other with the graph in the lower frame and the summary information shown in the upper frame. The summary information is the same as the information shown in the lower right frame in Figure 20. To return to the one frame format, click **Summary** again.

12. To print the data, whether it is viewed in table or graph format, click the **Print** button. A Printer List dialog box will appear for you to select a printer.

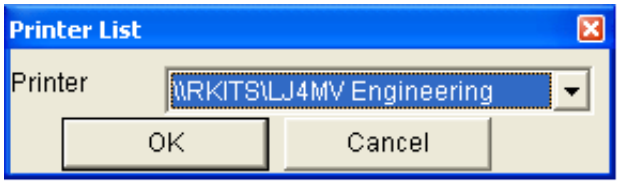


Figure 29: Printer List Dialog Box, Interval Data

13. Select a printer and click **OK** to print the data. Data displayed in Graph view will print as a graph and data displayed in Table view will print as a table.
14. To export the data to a file so it can be used by another application, for example a spreadsheet or database (for table data) or a word processing or presentation program (for graph data), click the **Export** button. A "Save As" dialog box will appear for you to specify the filename, file location, and file type.

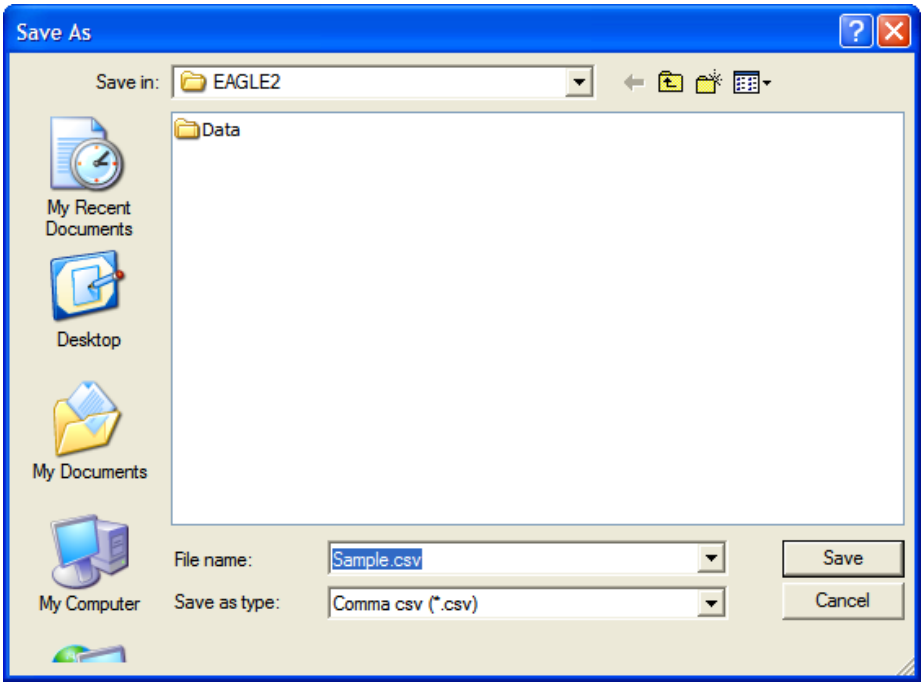


Figure 30: Save as Dialog Box

For Graph view, the export file type is Windows bitmap (.bmp). For Table view, the default file type is ".csv" (comma-separated values). After specifying the file name, file location, and file type, click the **Save** button to save the file to the specified location.

15. To go back and view other data, click the **Return** button in the upper right corner of the Data Window or the **Data** control button on the right side of the program window and select the data you want to view.

Alarm Trend Data

In addition to the interval trend data, the Eagle 2 also saves files that describe the most recent gas alarm events. If a gas alarm event occurs, then an alarm trend file that is centered around the event is saved separately from the interval trend data files. It shows the readings up to 30 minutes before and 30 minutes after the event, with the log interval time every five seconds. The gas readings logged at the alarm event time are highlighted in red and the gas readings logged every 5 seconds around the alarm event are the peak (minimum for oxygen) readings for the previous five seconds. If the Eagle 2 was operating in Inert Mode at the time of the alarm, the maximum oxygen readings will be saved. If the Eagle 2 has not been on for 30 minutes before the alarm event occurs, the data during this time is left blank. If the Eagle 2 is turned off less than 30 minutes after an alarm event occurs, the data file will only have logged data until the unit was turned off.

The Eagle 2 saves up to 8 alarm trend files. When an alarm event triggers an alarm trend file to be saved, subsequent alarm events must occur 15 minutes after the previous triggering event in order to trigger the saving of another alarm trend file. If 8 alarm trend files are already saved in the Eagle 2's memory, the oldest alarm trend file is overwritten when a new alarm trend file is saved. Alarm trend data can always be displayed in either table or graph format.

To view and perform desired operations with the alarm trend files:

1. With the software already launched, click the **Data** control button along the right side of the program window. The Data Window will appear.

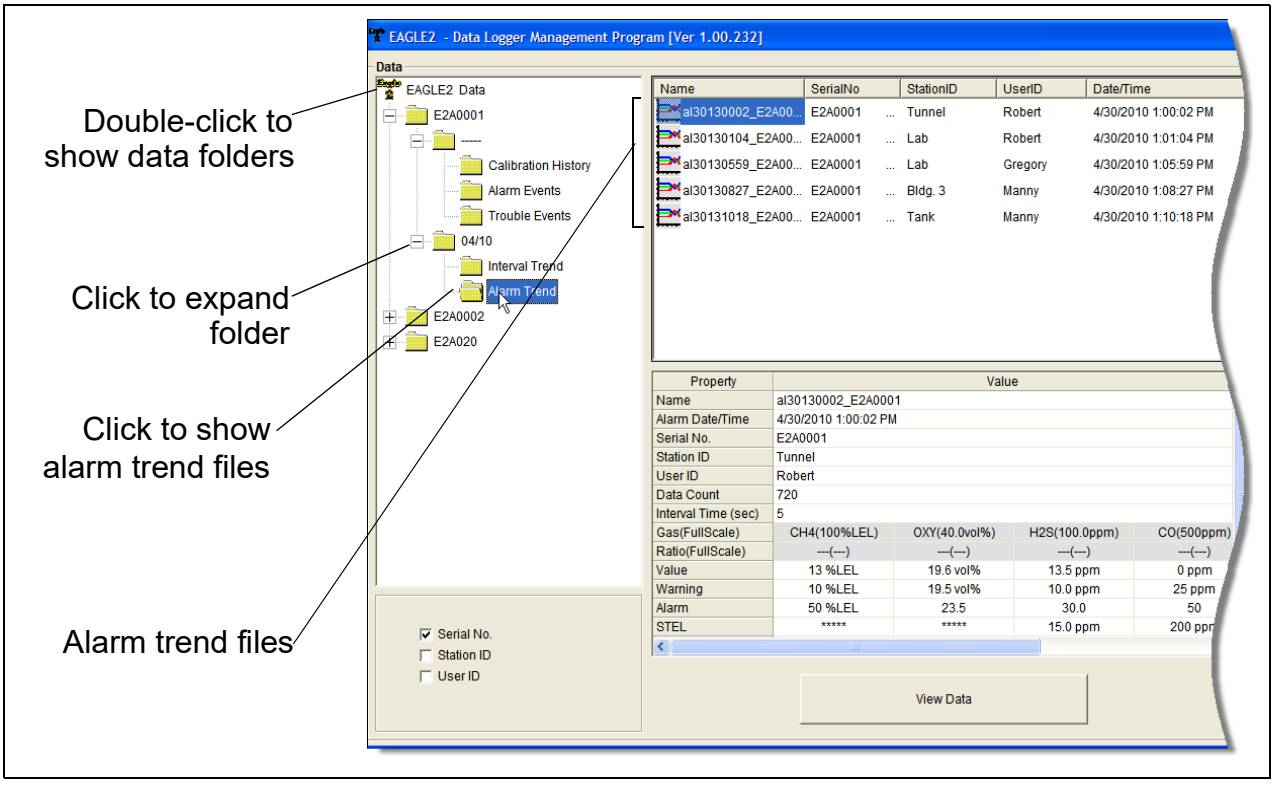


Figure 31: Data Window - Selecting Alarm Trend Data Files

2. If necessary, double-click the Eagle 2 icon in the top of the Data window's upper left frame to see the folders of downloaded data.

3. Find your instrument by serial number, then click the expanded view symbol (+) of or double-click the serial number folder to view the contents.The top folder is untitled and contains the Calibration History folder along with folders for alarm events and trouble events. The rest of the folders contain folders for the interval trend files and alarm trend files and are named and organized by date (month/year).
4. Click the expanded view symbol (+) of or double-click the dated folder whose contents you want to see.
5. Click on the Alarm Trend Folder in the upper left frame. In the upper right frame of the Data window, a list of file names will appear in the Name column. A prefix of "al" indicates an alarm trend data file.
6. Click one of the alarm trend data file names. A summary will appear in the bottom right frame with instrument and alarm setting information. If you want to view, graph, print, or export the alarm trend data, double-click the filename or click the **View Data** button at the bottom of the window.
7. Alarm trend data can be viewed in either table or graph format by selecting the Table or Graph selection buttons. The example below in Figure 32 is in table format.

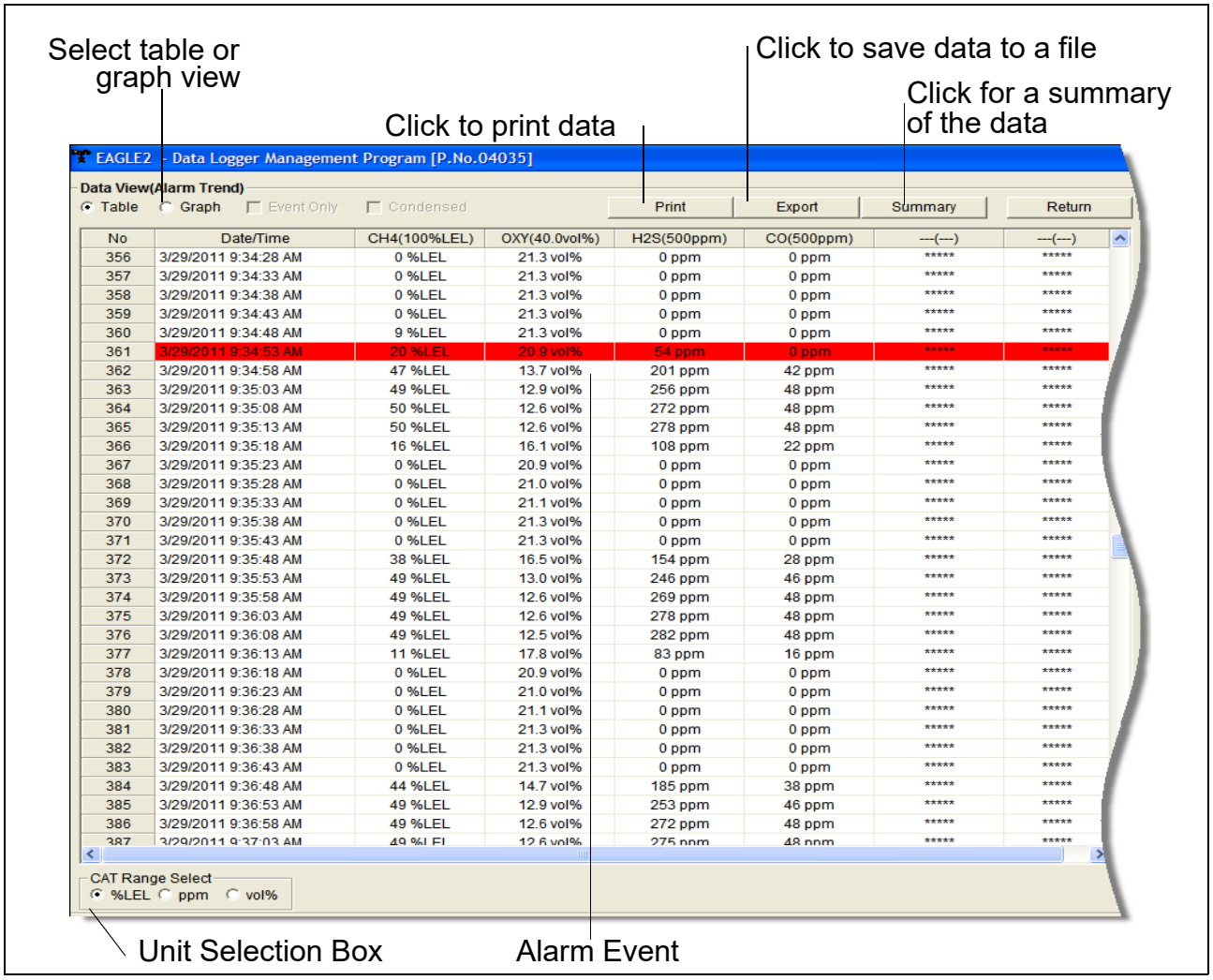
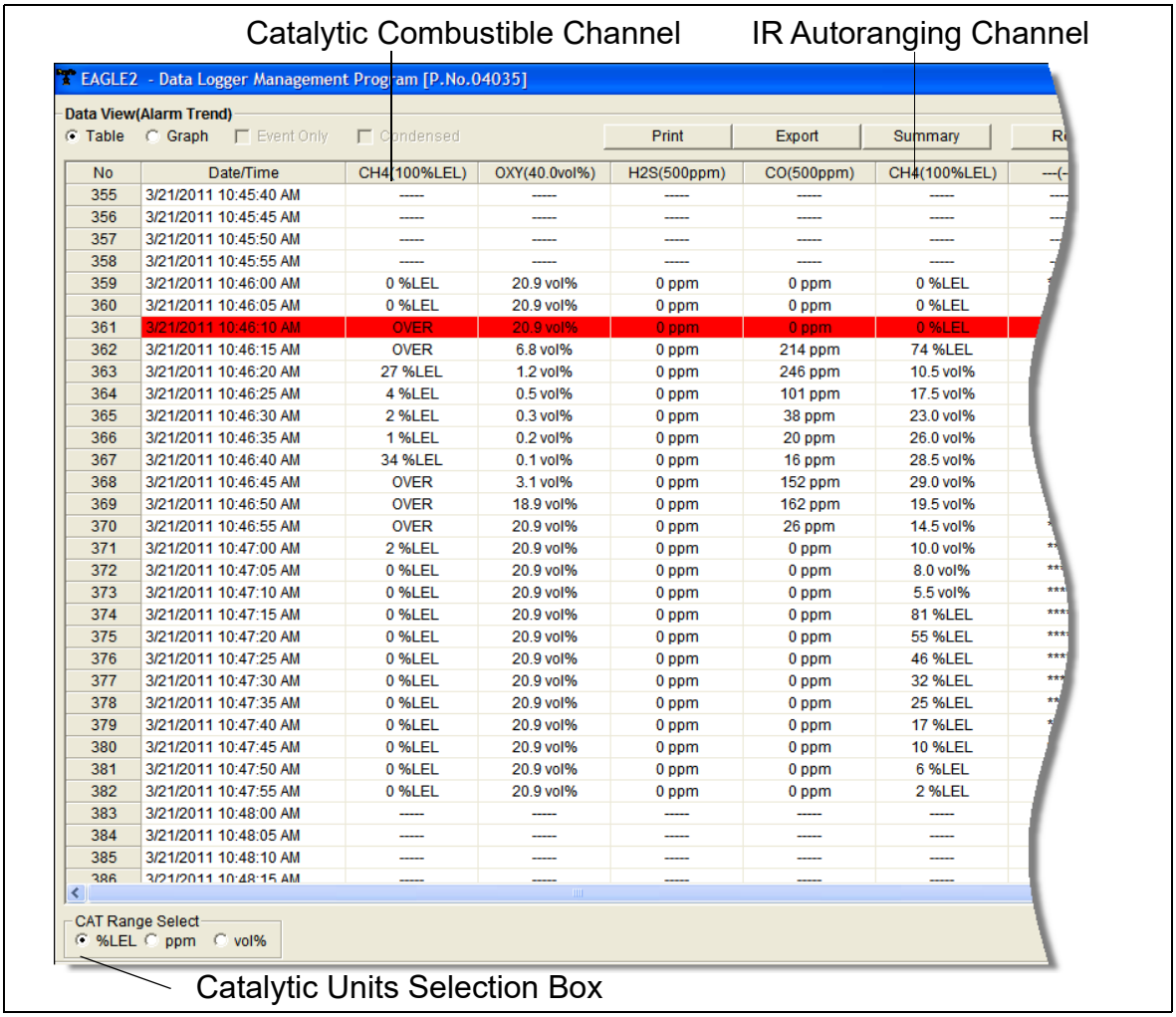


Figure 32: Alarm Trend Data in Table Format

- In table format, the log times are shown along with the peak (minimum for oxygen) gas readings for the previous five seconds.
- The gas readings at the time of the alarm event around which the logged data are centered are highlighted in red and are the instantaneous readings at that time.
- The catalytic combustible channel can be recorded in %LEL, ppm, or %volume units depending on the instrument setting. When viewing the alarm trend data in table format, the units for the catalytic LEL channel are shown in %LEL. The displayed units can be changed to ppm or %volume using the selection box in the bottom left portion of the screen.
- If installed, an infrared methane or hydrocarbon channel records data in %LEL and/or % volume units depending on whether the channel is configured as a % LEL channel or a %LEL/ % volume autoranging channel. When viewing the alarm trend data in table format, the units are displayed as the unit the reading was recorded in. In the following figure, the first channel is a catalytic LEL channel and the fifth channel is an IR autoranging CH_4 channel.



No	Date/Time	CH4(100%LEL)	OXY(40.0vol%)	H2S(500ppm)	CO(500ppm)	CH4(100%LEL)
355	3/21/2011 10:45:40 AM	-----	-----	-----	-----	-----
356	3/21/2011 10:45:45 AM	-----	-----	-----	-----	-----
357	3/21/2011 10:45:50 AM	-----	-----	-----	-----	-----
358	3/21/2011 10:45:55 AM	-----	-----	-----	-----	-----
359	3/21/2011 10:46:00 AM	0 %LEL	20.9 vol%	0 ppm	0 ppm	0 %LEL
360	3/21/2011 10:46:05 AM	0 %LEL	20.9 vol%	0 ppm	0 ppm	0 %LEL
361	3/21/2011 10:46:10 AM	OVER	20.9 vol%	0 ppm	0 ppm	0 %LEL
362	3/21/2011 10:46:15 AM	OVER	6.8 vol%	0 ppm	214 ppm	74 %LEL
363	3/21/2011 10:46:20 AM	27 %LEL	1.2 vol%	0 ppm	246 ppm	10.5 vol%
364	3/21/2011 10:46:25 AM	4 %LEL	0.5 vol%	0 ppm	101 ppm	17.5 vol%
365	3/21/2011 10:46:30 AM	2 %LEL	0.3 vol%	0 ppm	38 ppm	23.0 vol%
366	3/21/2011 10:46:35 AM	1 %LEL	0.2 vol%	0 ppm	20 ppm	26.0 vol%
367	3/21/2011 10:46:40 AM	34 %LEL	0.1 vol%	0 ppm	16 ppm	28.5 vol%
368	3/21/2011 10:46:45 AM	OVER	3.1 vol%	0 ppm	152 ppm	29.0 vol%
369	3/21/2011 10:46:50 AM	OVER	18.9 vol%	0 ppm	162 ppm	19.5 vol%
370	3/21/2011 10:46:55 AM	OVER	20.9 vol%	0 ppm	26 ppm	14.5 vol%
371	3/21/2011 10:47:00 AM	2 %LEL	20.9 vol%	0 ppm	0 ppm	10.0 vol%
372	3/21/2011 10:47:05 AM	0 %LEL	20.9 vol%	0 ppm	0 ppm	8.0 vol%
373	3/21/2011 10:47:10 AM	0 %LEL	20.9 vol%	0 ppm	0 ppm	5.5 vol%
374	3/21/2011 10:47:15 AM	0 %LEL	20.9 vol%	0 ppm	0 ppm	81 %LEL
375	3/21/2011 10:47:20 AM	0 %LEL	20.9 vol%	0 ppm	0 ppm	55 %LEL
376	3/21/2011 10:47:25 AM	0 %LEL	20.9 vol%	0 ppm	0 ppm	46 %LEL
377	3/21/2011 10:47:30 AM	0 %LEL	20.9 vol%	0 ppm	0 ppm	32 %LEL
378	3/21/2011 10:47:35 AM	0 %LEL	20.9 vol%	0 ppm	0 ppm	25 %LEL
379	3/21/2011 10:47:40 AM	0 %LEL	20.9 vol%	0 ppm	0 ppm	17 %LEL
380	3/21/2011 10:47:45 AM	0 %LEL	20.9 vol%	0 ppm	0 ppm	10 %LEL
381	3/21/2011 10:47:50 AM	0 %LEL	20.9 vol%	0 ppm	0 ppm	6 %LEL
382	3/21/2011 10:47:55 AM	0 %LEL	20.9 vol%	0 ppm	0 ppm	2 %LEL
383	3/21/2011 10:48:00 AM	-----	-----	-----	-----	-----
384	3/21/2011 10:48:05 AM	-----	-----	-----	-----	-----
385	3/21/2011 10:48:10 AM	-----	-----	-----	-----	-----
386	3/21/2011 10:48:15 AM	-----	-----	-----	-----	-----

Figure 33: Alarm Trend Data in Table Format

- If you click the **Summary** button, the data window will split into two frames one above the other with the data table in the lower frame and the summary information shown in the upper frame. The summary information is the same as the information shown in the lower right frame in Figure 31.

8. The **Event Only** and **Condensed** selection boxes are not selectable for alarm trend files.
9. To view the data in graph format, click the **Graph** button. An alarm trend file can always be graphed regardless of the number of logged points.

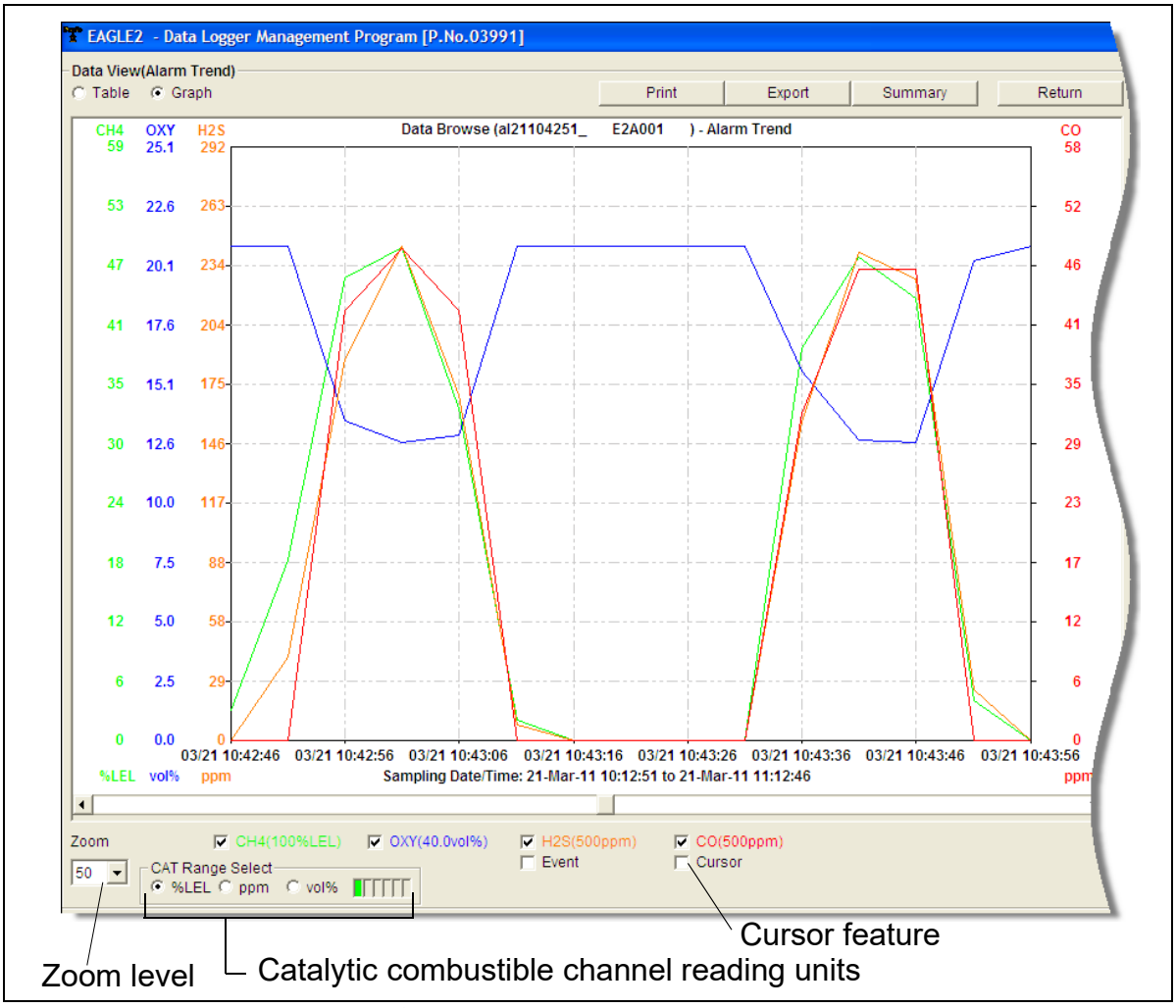


Figure 34: Alarm Trend Data in Graph Format

When viewing alarm trend data in graph format, you have several options:

- You can choose which gas(es) you want to graph by selecting or deselecting the boxes next to each gas name. The color of the gas name corresponds with its color on the graph and on the scale.
- The catalytic combustible channel can be graphed in %LEL, ppm, or %volume units. While readings can be recorded in any of these units and stored in the same file, those readings may only be graphed in one unit at a time. If %LEL is chosen as the unit, any ppm or %volume data is converted and graphed as %LEL. The user may change back and forth between the units for the graph and still have all data shown. The CAT Range Select box is where the user may select %LEL, ppm, or % volume as the units for the graph. The box just to the right of the selection dots shows what channel the catalytic combustible detector is associated with and what color it is displayed in on the graph. In the example below, the catalytic combustible channel is the first channel and is displayed in green.

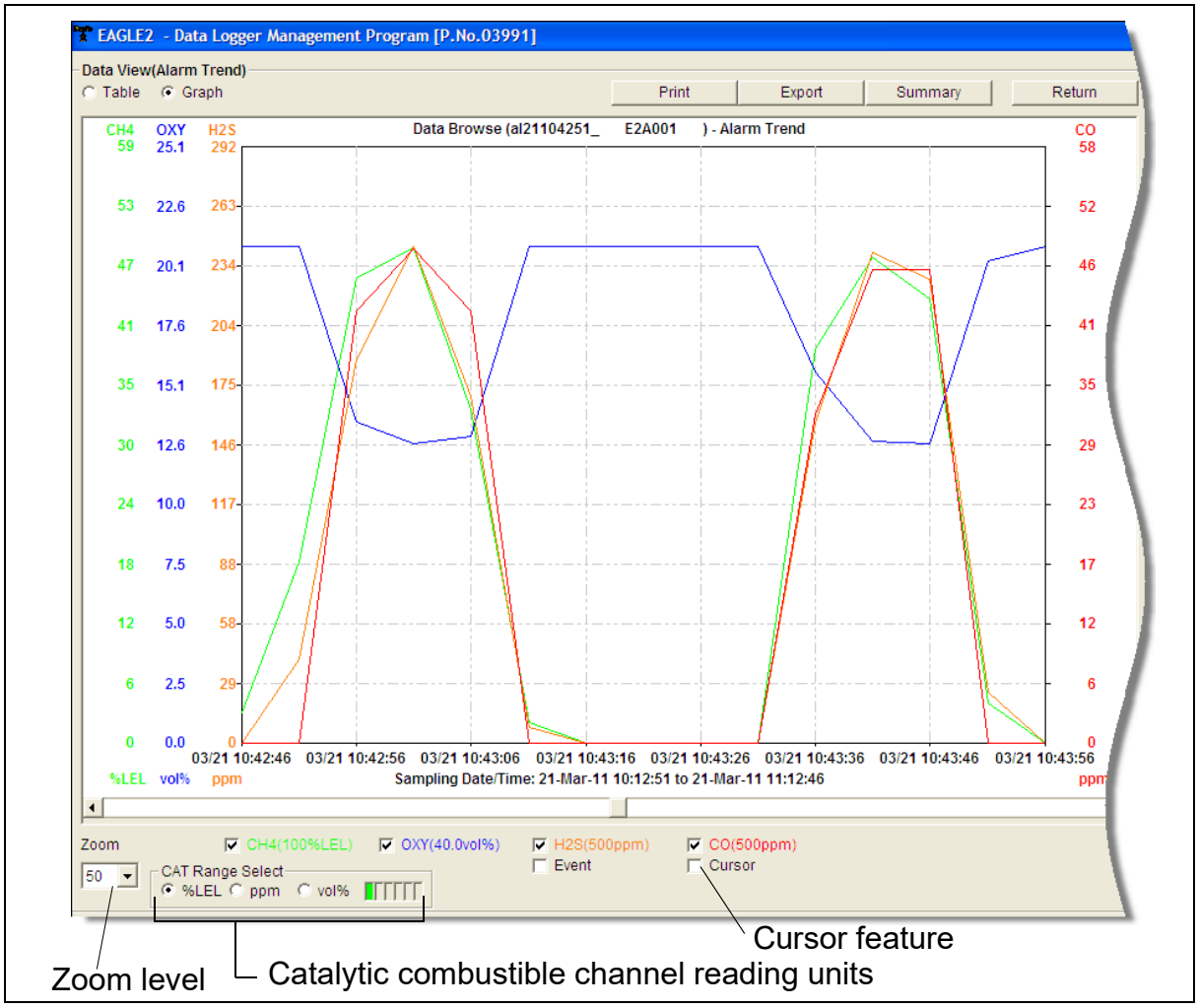


Figure 35: Alarm Trend Data in Graph Format

- If installed, an IR HC or CH_4 channel can be graphed in %LEL or % volume in order to accurately depict the full range of the sensor.

If the channel is configured as a %LEL only channel, then data will only be recorded in %LEL and the range will be
0-100% LEL. Any gas concentration above that level will not be recorded.

If the channel is configured as a %LEL/% volume autoranging channel, then data will be recorded in %LEL and % volume where appropriate. It will record data in %LEL up to 100% LEL and then it will start recording data in % volume up to 100% volume. If %LEL is chosen as the graphing units, all data collected for a %LEL only channel will be displayed. Any data collected in an autoranging configuration that exceeds 100% LEL will not be shown. In order to view data above 100% LEL, % volume must be selected. When % volume is selected, all data will be shown in terms of % vol.

The IR Range Select box located in the bottom right corner of the screen is where the unit selection is made for the IR channel. The box next to the selection dots indicates what channel the IR sensor is associated with and what color is used to indicate that channel on the graph. In the example below, the IR channel is the first channel and its information is displayed in green.

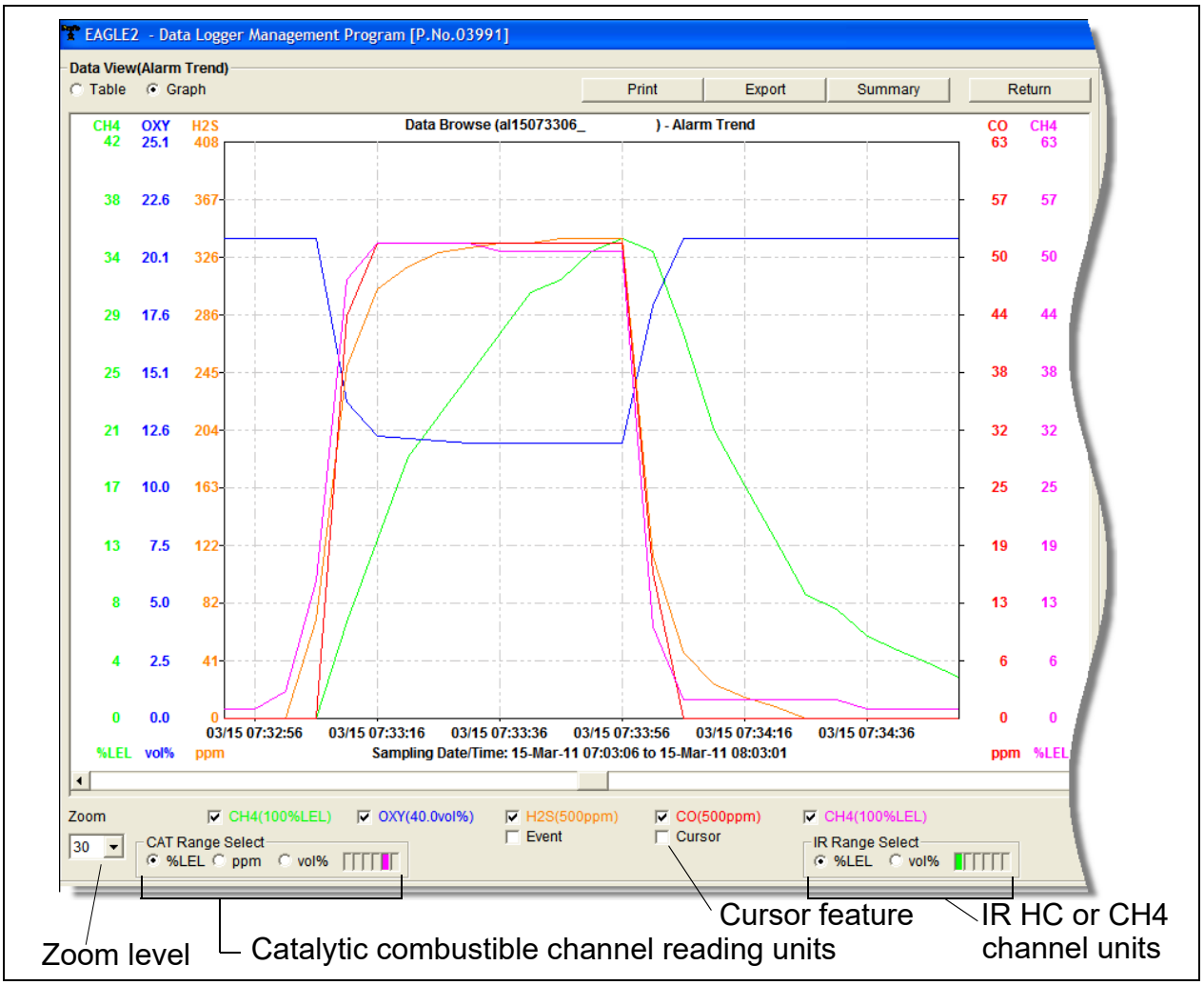


Figure 36: Alarm Trend Data in Graph Format

NOTE: The IR Range Select selection box in the lower right hand corner only appears if an IR HC or CH_4 sensor is installed, is in use, and is set up for autoranging. If an IR HC or CH_4 sensor is not installed, if its channel is turned off, or if it's set up for % LEL only, this box will not appear.

- You can choose the zoom level, or displayed time interval, on the graph. The zoom feature shows greater detail relative to time. Thus, the length of a time division on the graph will depend on both the length of the datalogging session and on the zoom factor.
- When selected, the Event feature shows on the graph where each channel went into and out of alarm and at what concentration each event occurred.
- When selected, the Cursor feature allows you to display the gas reading and log time for each data point in the alarm trend file. As you use the left and right arrow buttons on your keyboard to move the cursor across the graph horizontally, readings at specific log times are displayed. Use the up and down arrows on the keyboard to move the readings up or down on the screen.

- If you click the **Summary** button, the data window will split into two frames one above the other with the graph in the lower frame and the summary information shown in the upper frame. The summary information is the same as the information shown in the lower right frame in Figure 31. To return to the one frame format, click **Summary** again.

10. To print the data, whether it is viewed in table or graph format, click the **Print** button. A Printer List dialog box will appear for you to select a printer.

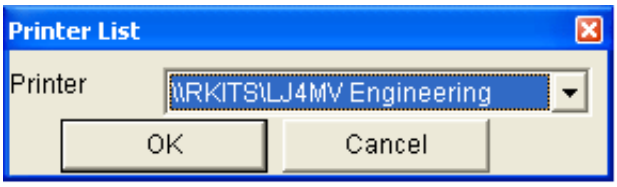


Figure 37: Printer List Dialog Box, Interval Data

11. Select a printer and click **OK** to print the data. Data displayed in Graph view will print as a graph and data displayed in Table view will print as a table.

12. To export the data for use in another application, for example a spreadsheet or database (for table data) or a word processing or presentation program (for graph data), click the **Export** button. A "Save As" dialog box will appear for you to specify the filename, file location, and file type.

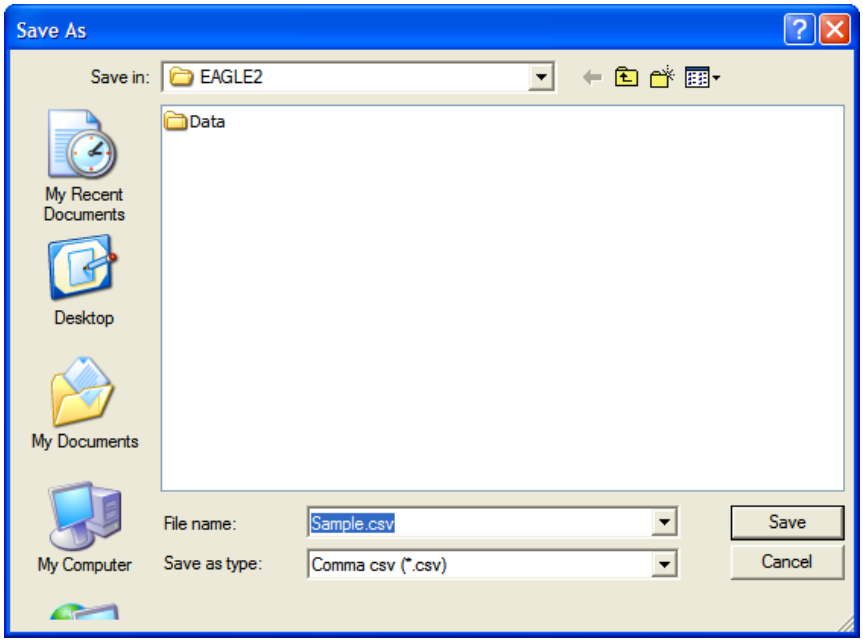


Figure 38: Save as Dialog Box

For Graph view, the export file type is Windows bitmap (.bmp). For Table view, the default file type is ".csv" (comma-separated values). After specifying the file name, file location, and file type, click the **Save** button to save the file to the specified location.

13. To go back and view other data, click the **Return** button in the upper right corner of the Data Window or the **Data** button on the right side of the program window and select the data you want to view.

Deleting Data in the Data Window

The following items can be deleted in the Data Window:

- Data folders
- Calibration History files
- Alarm and Trouble Event files
- Interval Trend and Alarm Trend data files

To delete any of the above items in the Data Window:

1. With the program launched, click the Data control button on the right side of the program window.
2. Find the folder or file you want to delete.
3. Place the cursor on the folder or file you want to delete and click it with the right mouse button. The Delete box will appear.

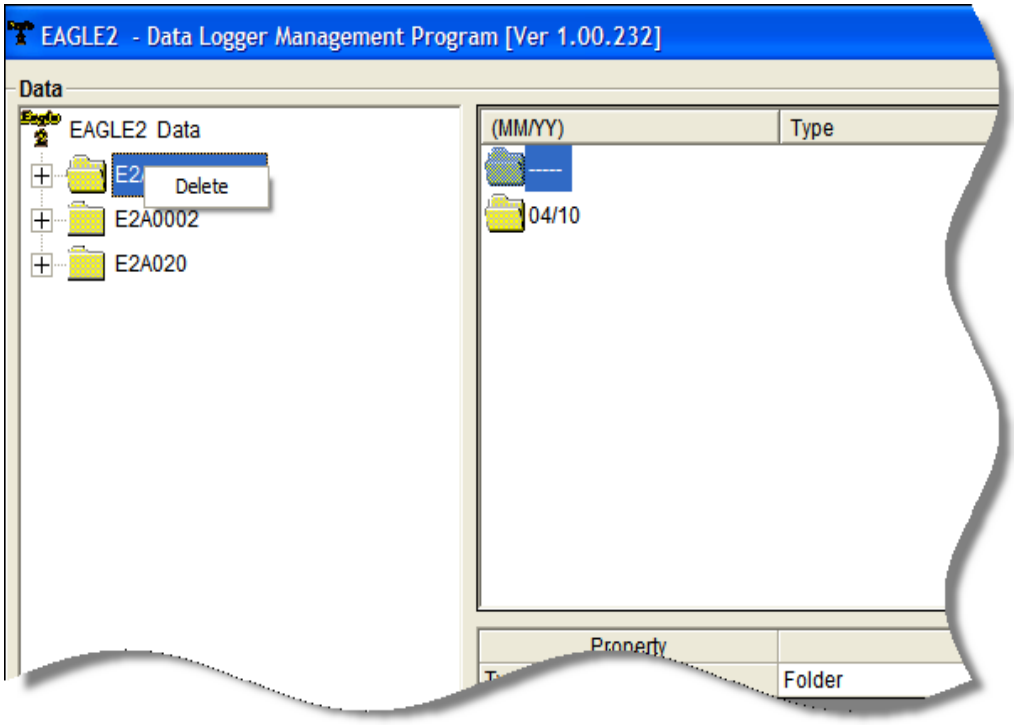


Figure 39: Delete Box

4. Click Delete with the left mouse button. The Password Window appears.

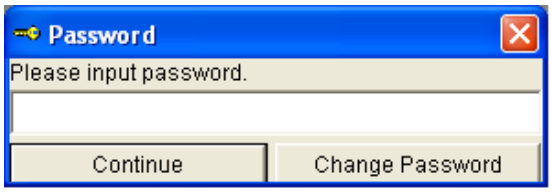


Figure 40: Password Window

5. Enter the password and click **Continue**. The password when the program is first installed is “rki”. The password is case sensitive. See “Changing the Delete Password” on page 44 for instructions to change the password if desired.
6. A window will appear asking you to confirm that you want to delete the selected folder or file.

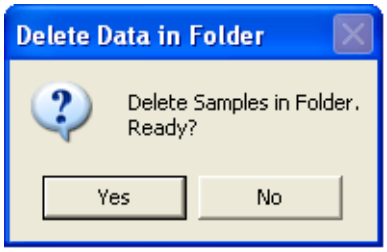


Figure 41: Delete Data Window

7. If you want to delete the selected item, click **Yes**. The item will be deleted by the program.

   If you do not want to delete the selected item, click **No** and the operation will be cancelled.

Changing the Delete Password

CAUTION: *Changing the password requires use of the Delete box. Take care to avoid accidentally deleting data if you decide to change the password.*

It is possible to change that password as follows:

1. Right-click a data folder, data file, or event file. The Delete box will appear.

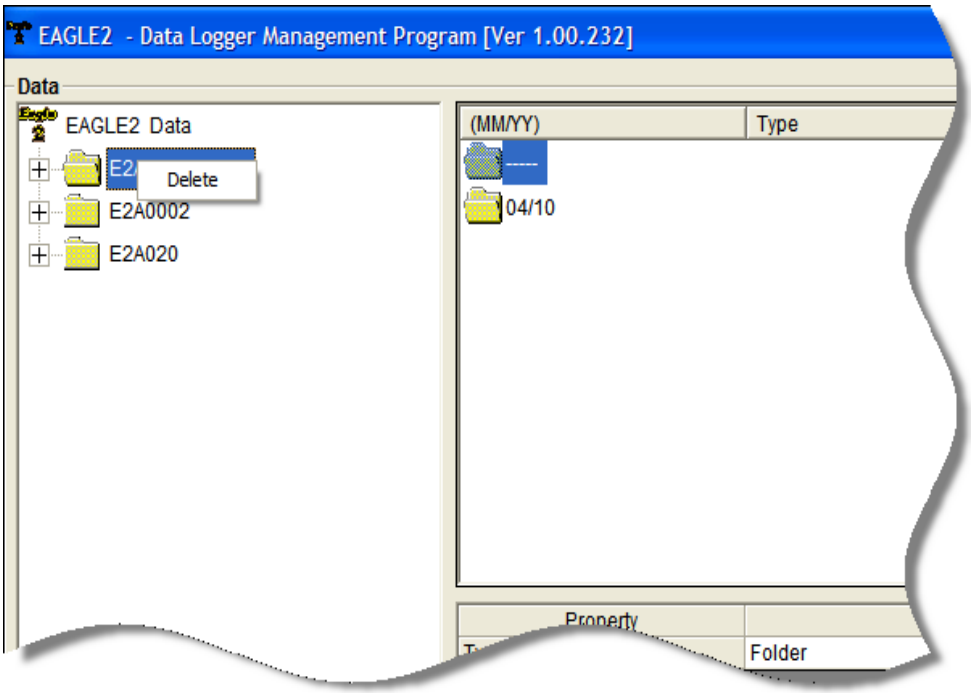


Figure 42: Delete Box

2. Click Delete with the left mouse button. The Password Window appears.

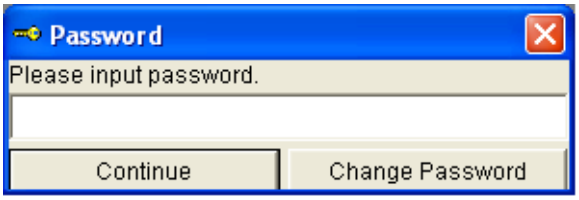


Figure 43: Password Window

3. Click **Change Password**. The Password Window asks you to input the current password.

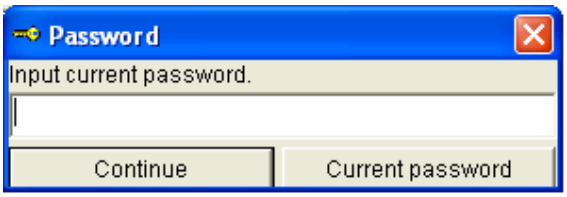


Figure 44: Inputting Current Password

4. Type the current password, then click **Current password**. The Password Window asks you to input the new password.

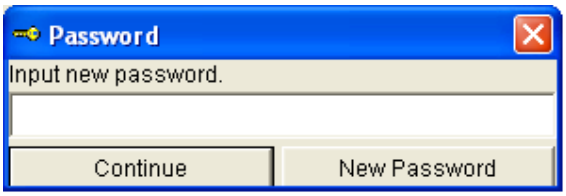


Figure 45: Inputting New Password

5. Type the new password and click **New Password**. The Password Window asks you to input the new password again to confirm it.

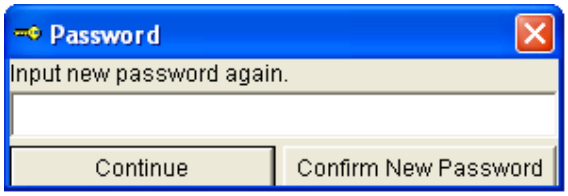


Figure 46: Confirming

6. Type the new password again, then click **Confirm New Password**.
7. Click **OK** when the program confirms that you have changed the password.

Figure 47: Confirming New Password

8. Close the Password Window by clicking the red “X” in the upper right corner of the window.

Chapter 6: Last Calibration Window

You can access data on the most recent successful calibration for each instrument that has been downloaded in the Last Calibration Window. You can view, print (calibration date view option only), and delete this data in the Last Calibration Window.

Viewing and Printing Last Calibration Data

Open the Last Calibration Window by clicking **Last Calibration** along the right side of the program window. When you open the Last Calibration Window the first time after launching the program, it will open with the Need Calibration view option selected. There are three view options in the Last Calibration window: Need Calibration, Calibration Date, and Calibration Record.

Need Calibration Option

Selecting this option shows the last calibration date and the last download date for the Eagle 2s that are due for calibration.

NOTE: The calibration interval, the number of days after a calibration that a new calibration is due, is saved in the Eagle 2. If the calibration interval is changed in the Eagle 2, the new calibration interval will not be known by the program until the Eagle 2 is downloaded.

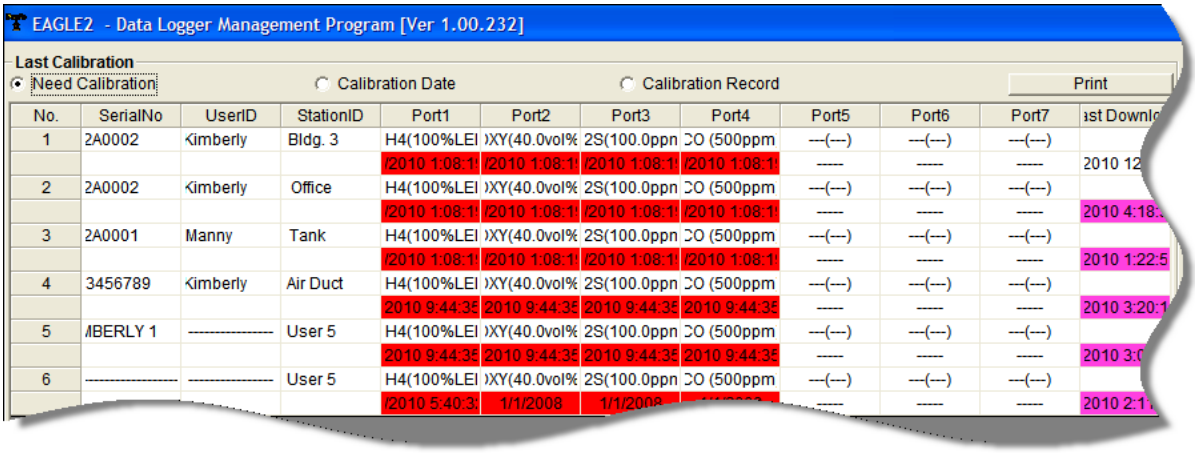


Figure 48: Last Calibration Window: Need Calibration View Option

The Need Calibration view option shows the following fields:

- No. — lists, in numerical order, the sequence of Eagle 2s whose data have been downloaded to the program. The most recently downloaded Eagle 2 will be No. 1.
- SerialNo — shows the serial number of the Eagle 2 that was downloaded.
- UserID — shows the user ID of the Eagle 2 that was downloaded.
- StationID — shows the station ID of the unit that was downloaded.

- Ports (1-4) — shows when the unit was calibrated for each of the channels using the **MM/DD/YY** format and 24-hour military standard time. Each port number corresponds with a channel number in the Eagle 2. Ports 1-4 correspond with Channels 1-4 displayed from top to bottom on the Eagle 2 display when in Measuring Mode. For each serial number, each port has 2 display lines. The first line displays the target gas and sensor range. The second line displays the most recent calibration date or the date the channel is due for calibration.

NOTE: Your Eagle 2 may have more than 4 sensors installed.

- Last Downloaded — shows when the last download took place for a unit using the **MM/DD/YY** format and a 12-hour clock. This parameter is displayed on the second display line for each unit downloaded.

The Eagle 2s that are due for calibration (in the case of the Need Calibration view option, that will be all of them), will have their last calibration date highlighted in red. The Eagle 2s that have not been downloaded for more than 90 days will have their last download date highlighted in purple.

To print a list of the instruments shown in the Need Calibration view option along with their user ID and last calibration date, click the **Print** button. A Printer List dialog box will appear.

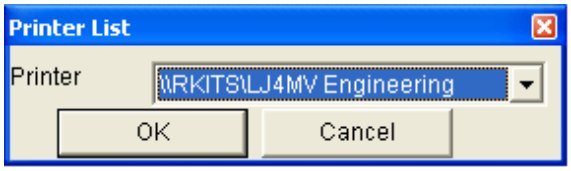


Figure 49: Printer List Dialog Box

Select a printer and click the **OK** button to print the instrument list.

Calibration Date View Option

Selecting this option shows the last calibration date and the last download date for all the Eagle 2s that are in the program's database. The fields for the Calibration Date view option are the same as for the Need Calibration view option.

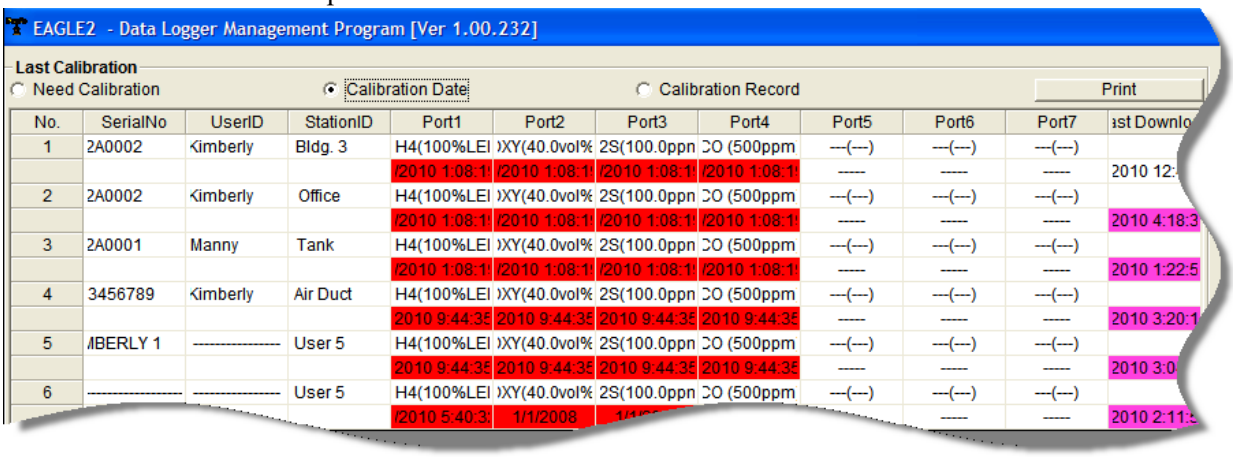


Figure 50: Last Calibration Window: Calibration Date View Option

To print a list of the instruments shown in the Calibration Date view option along with their user ID and last calibration date, click the **Print** button. A Printer List dialog box will appear.

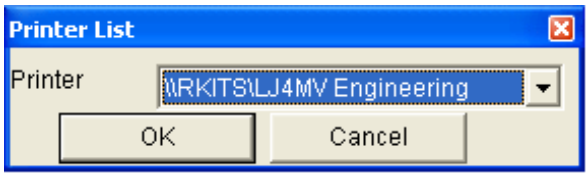
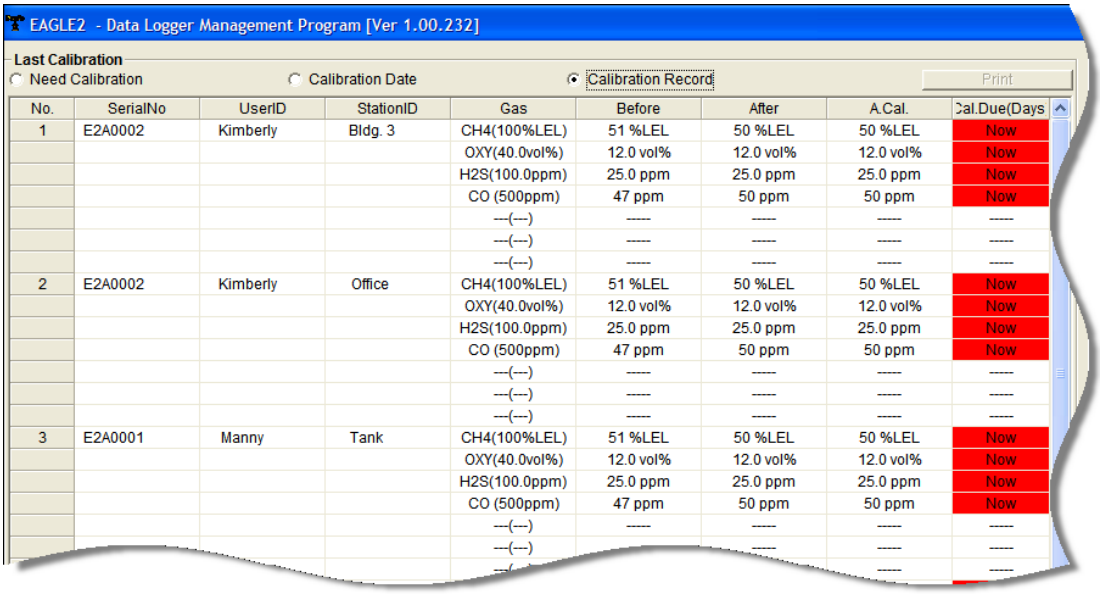


Figure 51: Printer List

Select a printer and click the **OK** button to print the instrument list.

Calibration Record View Option

Selecting the Calibration Record view option shows detailed calibration information for each Eagle 2's most recent successful calibration.



No.	SerialNo	UserID	StationID	Gas	Before	After	A.Cal.	Cal.Due(Days
1	E2A0002	Kimberly	Bldg. 3	CH4(100%LEL)	51 %LEL	50 %LEL	50 %LEL	Now
				OXY(40.0vol%)	12.0 vol%	12.0 vol%	12.0 vol%	Now
				H2S(100.0ppm)	25.0 ppm	25.0 ppm	25.0 ppm	Now
				CO (500ppm)	47 ppm	50 ppm	50 ppm	Now
				---(---)	-----	-----	-----	-----
				---(---)	-----	-----	-----	-----
				---(---)	-----	-----	-----	-----
2	E2A0002	Kimberly	Office	CH4(100%LEL)	51 %LEL	50 %LEL	50 %LEL	Now
				OXY(40.0vol%)	12.0 vol%	12.0 vol%	12.0 vol%	Now
				H2S(100.0ppm)	25.0 ppm	25.0 ppm	25.0 ppm	Now
				CO (500ppm)	47 ppm	50 ppm	50 ppm	Now
				---(---)	-----	-----	-----	-----
				---(---)	-----	-----	-----	-----
				---(---)	-----	-----	-----	-----
3	E2A0001	Manny	Tank	CH4(100%LEL)	51 %LEL	50 %LEL	50 %LEL	Now
				OXY(40.0vol%)	12.0 vol%	12.0 vol%	12.0 vol%	Now
				H2S(100.0ppm)	25.0 ppm	25.0 ppm	25.0 ppm	Now
				CO (500ppm)	47 ppm	50 ppm	50 ppm	Now
				---(---)	-----	-----	-----	-----
				---(---)	-----	-----	-----	-----

Figure 52: Last Calibration Window: Calibration Record View Option

The fields on this screen include No., SerialNo, UserID, and StationID just as in the Need Calibration and Calibration Date screens. The fields also include the following:

- Gas — Lists the target gas for which the Before, After, and A.Cal readings are displayed.
- Before — shows the settings prior to calibration.
- After — shows the settings after calibration.
- A. Cal. — lists the auto-calibration setting for each channel of the Eagle 2. If a Eagle 2 passes its calibration, the "After" column should match the "A. Cal." column. If the Eagle 2 fails calibration on any of its channels, those channels will retain the previous calibration information.

NOTE: If a unit is calibrated using Single Calibration in the Eagle 2's Calibration Mode (see the Eagle 2 Operator's Manual) it is possible for the "After" reading to be different from the "A.Cal" setting if the unit was set to a level different than the "A.Cal" setting.

- Cal. Due (Days) — shows when calibration is due in days (e.g., “Remaining 25 Day” means that calibration is due in 25 days, and “Now” means that calibration is due immediately).

It is not possible to print any information when the Calibration Record view option is selected.

To view and print all past calibrations for an instrument, see “Calibration History Data” on page 19.

Deleting Last Calibration Data

To delete an instrument and its calibration data from the Last Calibration Window:

1. With the program launched, click **Last Calibration** on the right side of the program window. The Last Calibration Window will appear.
2. Select the Need Calibration or Calibration Date option.
3. Click the first row for the instrument whose calibration information you want to delete to select it. It will be highlighted to show that it is selected.
4. Click the row with the right mouse button. The Delete box appears.

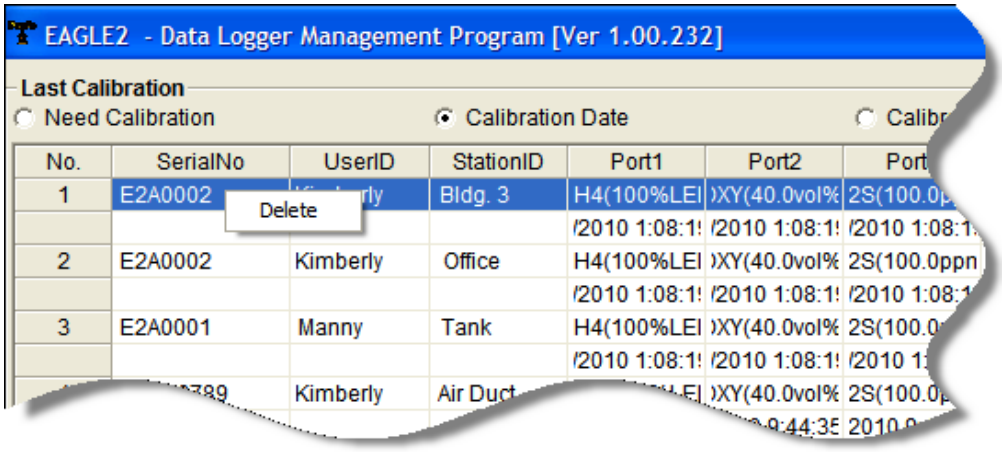


Figure 53: Delete Box

5. Click Delete with the left mouse button. The Password window appears.

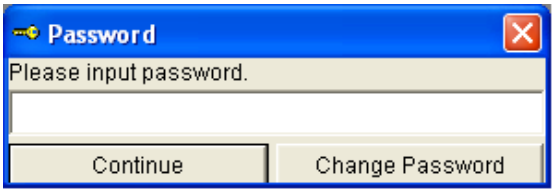


Figure 54: Password Window, Deleting Last Calibration Data

6. Enter the password and click the **Continue** button. The password when the software is first installed is “rki”. The password is case sensitive. See “Changing the Delete Password” on page 44 for instructions to change the password if desired.

7. When the password has been entered and the **Continue** button clicked, the Delete History window will appear asking you to confirm that you want to delete the most recent calibration information for the selected instrument.

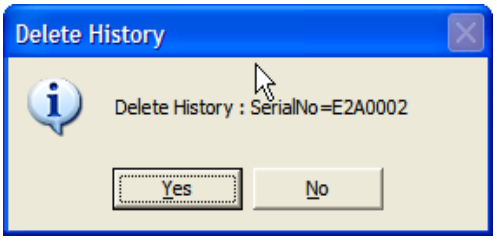


Figure 55: Delete History Window

8. If you want to delete the calibration information, click **Yes**. The information will be deleted by the program.

   If you do not want to delete the calibration information, click **No** and the operation will be cancelled.

Chapter 7: Set Window (Calibrating an Eagle 2)

An Eagle 2 can be calibrated using the Eagle 2 Data Logger Management Program. The calibration function is available in the Set window. To perform a calibration you will need a calibration kit. This section describes calibration using a calibration kit that includes a demand flow regulator. If a calibration kit is used that includes a sample bag and a dispensing valve instead of a demand flow regulator, connect a sample bag filled with calibration gas to the Eagle 2's probe tube when applying gas instead of connecting the demand flow regulator to the Eagle 2's probe tube.

To calibrate the Eagle 2, you will need the following items:

- Known calibrating samples of the gases being detected. The combustible and toxic gas samples should have concentrations in approximately the middle of the range of detection. For the standard 4-gases, a 3-gas or 4-gas mix, depending on your instrument version, is recommended so that all channels may be calibrated at once.
- If an optional sensor is installed, this sensor will probably need to be calibrated individually because its target gas is not included in a 3-gas or 4-gas mix. The available optional sensors are PID, ESM-01, IR, or TC sensors.
- A demand-flow regulator to provide adequate sample gas flow.
- Non-absorbent tubing to connect the regulator to the Eagle 2's probe tube.

CAUTION: *Calibration using the Eagle 2 Data Logger Management Program should be done in a fresh air environment, an area free of combustible and toxic gases and of normal oxygen content (20.9%). If you suspect the area is not a fresh air environment, apply zero air to the instrument when performing a zero operation.*

To calibrate an Eagle 2, perform the following steps:

1. Install the Eagle 2's probe on the inlet fitting.
2. Launch the Eagle 2 Data Logger Management Program.
3. If Automatic Download is selected, deselect it. The Eagle 2 will be turned off by the program after an automatic download, so calibration will not be possible if Automatic Download is selected.
4. Connect an Eagle 2 to the program as described on page 12.
5. Once the connection is made, the **Complete Download, Instrument Information, Clear Logger Data,** and **Power Off** download commands will be selectable. Click the **Instrument Information** download command to retrieve the instrument information from the Eagle 2. If you wish to download data before calibrating, click **Complete Download** instead of **Instrument Information**.
6. Click the **Set** button to display the Set window.

7. Click the **Calibration** button in the Eagle 2 Status frame.

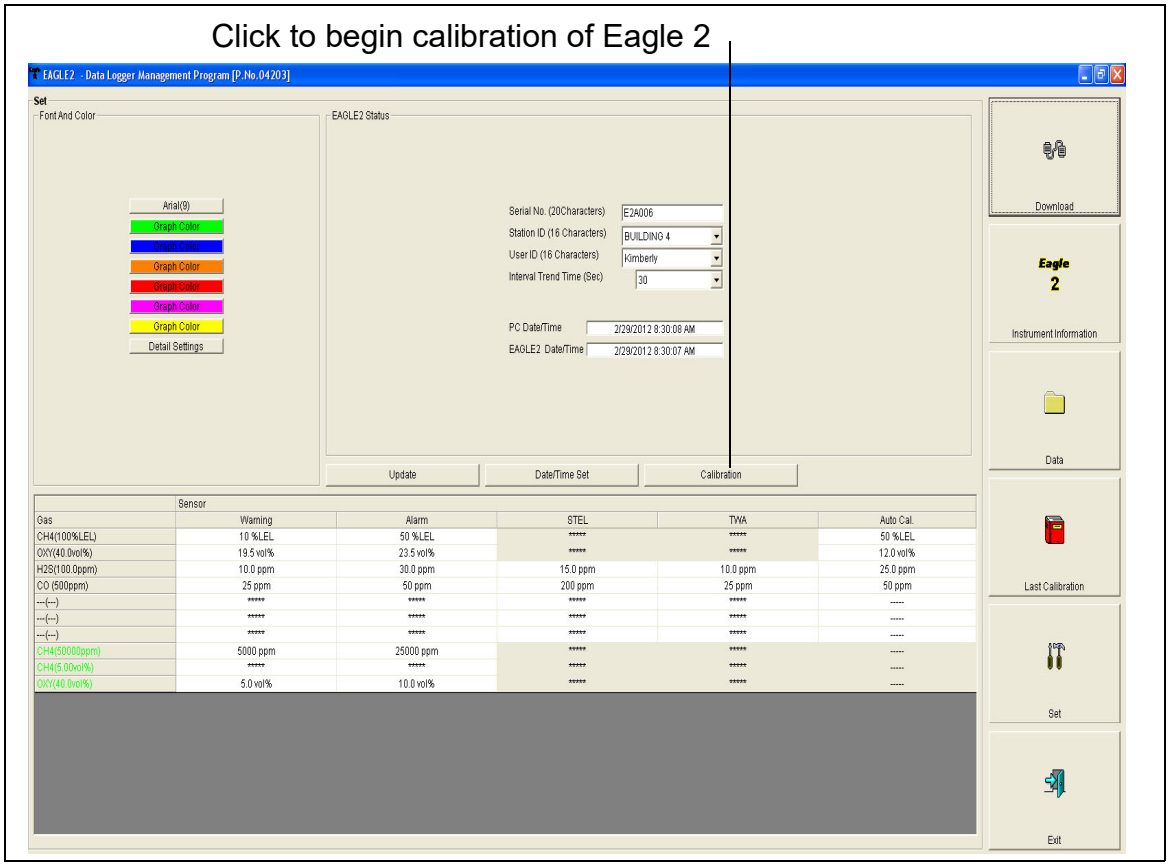


Figure 56: Set Window

8. The Eagle 2's pump will turn on. The Calibration frame will replace the Eagle 2 Status frame and the control buttons along the right side of the window will become inactive.

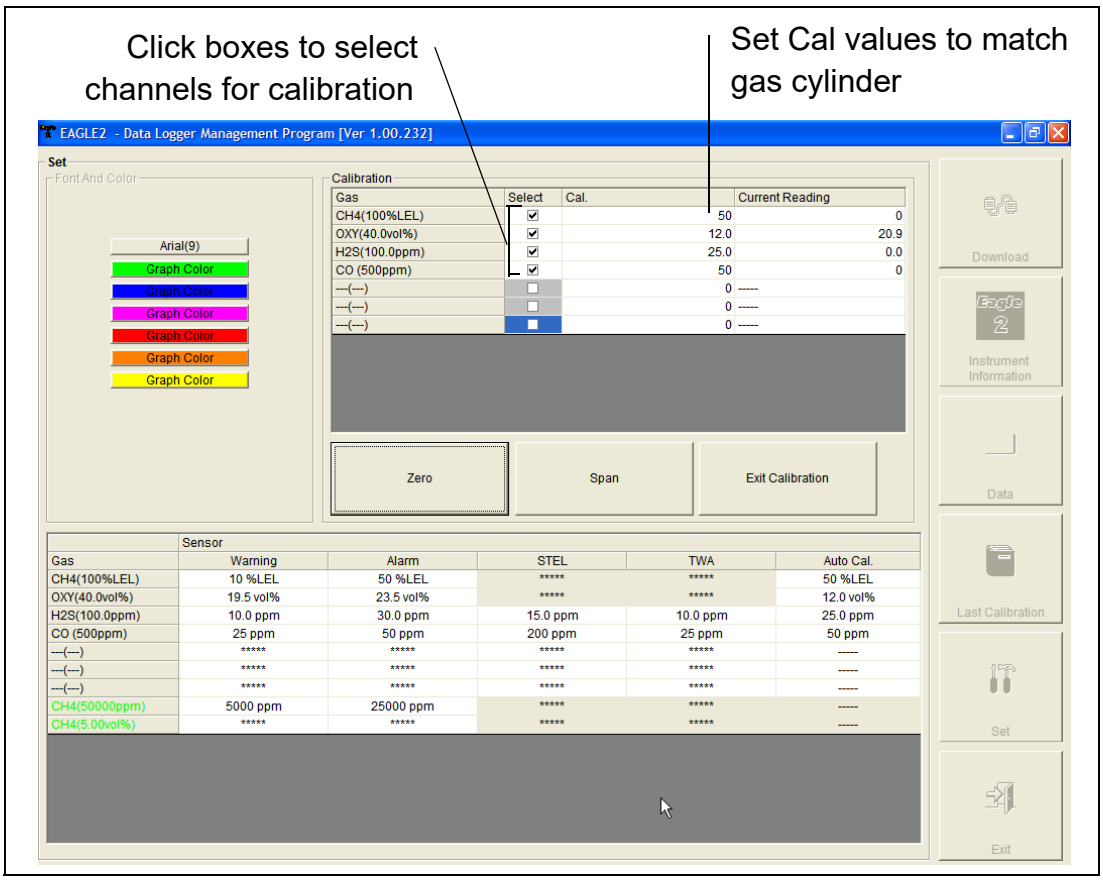


Figure 57: Set Window With Calibration Frame

9. Use the selection boxes under the Select column to select the channels you want to calibrate.
10. Click the **Zero** button. The software will perform a zero adjustment setting the oxygen channel to 20.9% and all other channels to 0.
11. If an optional sensor is installed and its target gas is not included in the 3-gas or 4-gas mix, the span will need to be adjusted individually.
12. Verify that the value(s) in the Cal. column match the gas concentration(s) in the calibration cylinder that will be used. If not, place the cursor in the field that needs to be changed and update the value.
13. Screw the demand flow regulator onto the calibration cylinder.
14. Connect the regulator to the Eagle 2 probe tube using the sample tubing provided with the calibration kit.
15. Allow the gas to flow for one minute. The current gas readings will be shown in the Current Reading column.
16. Click the **Span** button. The program will make the span adjustments.
17. Disconnect the tubing from the Eagle 2's probe tube.
18. Remove the regulator from the cylinder.
19. Allow the current readings to return to normal and click the **Exit Calibration** button to return to the Eagle 2 Status frame. The Eagle 2's pump will turn off.

20. If you wish to use other functions in the software, click one of the control buttons.
21. If you wish to exit the software, click the **Download** button to return to the Download window. Turn off the Eagle 2 by using the POWER ENTER RESET button on the Eagle 2 or by clicking the **Power Off** button and confirming that you want to turn off the Eagle 2 when the Power Off window appears. Then click the **Exit** button to exit the program.

Chapter 8: Set Window (Instrument Parameters)

Changing Instrument Parameters

To make changes to parameters stored in the Eagle 2, use the Eagle 2's Data Logger Management Program's Set Window. Follow the steps below to make these changes.

1. Launch the Eagle 2 Data Logger Management Program.
2. If the Automatic Download selection box is selected, deselect it.
3. Connect an Eagle 2 to the program as described on page 12.
4. Once the connection is made, the **Complete Download, Instrument Information, Clear Logger Data,** and **Power Off** download commands will be selectable. Click the **Instrument Information** download command to retrieve the instrument information from the Eagle 2. If you wish to download data before making changes, click **Complete Download** instead of **Instrument Information**.
5. Click the **Set** button to display the Set Window. Use the Eagle 2 Status Frame and the Gas/Sensor Frame to change parameters stored in the Eagle 2.

   Alarm settings are shown in the Gas/Sensor Frame at the bottom of the screen. Settings for installed sensors are shown in black text. Additional alarm settings for the installed sensors are shown in green text. The oxygen alarm settings shown in green at the bottom of the Gas/Sensor Frame are for Inert Mode. Inert Mode must be activated in the Eagle 2 for this alarm setting to appear. Alarm setting changes made to the Inert Mode oxygen alarms will not affect the Normal Mode oxygen alarms. The Normal Mode oxygen alarms can be viewed and edited above the Inert Mode oxygen alarms in the standard four gas section.
6. To change the serial number, click the serial number field and use the backspace key to remove the current entry, then type the new information. To change the station ID or user ID, click the drop-down menu and select the desired station or user ID.
7. To change the datalogging trend interval time, click on the down arrow in the Interval Trend Time Field and select the desired interval time in seconds. The available choices are 5, 10, 20, 30, 60, 180, 300, and 600 seconds.
8. To change the channel parameters, click the field you wish to change (e.g. H2S AutoCal.) to select it, then type the new information.
9. After you have finished entering new parameters, you must upload this information to the Eagle 2 by clicking the **Update** button, then confirming that you want to update the information by clicking the **Yes** button when the Update window appears.
10. To update the Eagle 2's date and time to match the computer's, click the **Date/Time Set** button and then click the **Yes** button when the Update window appears.
11. If you wish to use other functions in the program, click the appropriate control button along the right side of the program window.

12. If you wish to exit the software, click the **Download** control button to return to the Download Window. Turn off the Eagle 2 by using the POWER ENTER RESET button on the Eagle 2 or by clicking the **Power Off** button and confirming that you want to turn off the Eagle 2 when the Power Off Window appears. Then click the **Exit** button to exit the software.

Changing User and Station IDs

1. Launch the Eagle 2 Data Logger Management Program.
2. If the Automatic Download selection box is selected, deselect it.
3. Connect an instrument to the program as described on page 12.
4. Once the connection is made, the **Complete Download, Instrument Information,** and **Power Off** download commands will be selectable. Click the **Instrument Information** download command to retrieve the instrument information from the instrument. If you wish to download data before making changes, click **Complete Download** instead of **Instrument Information**.
5. Click the **Set** button to display the Set window.

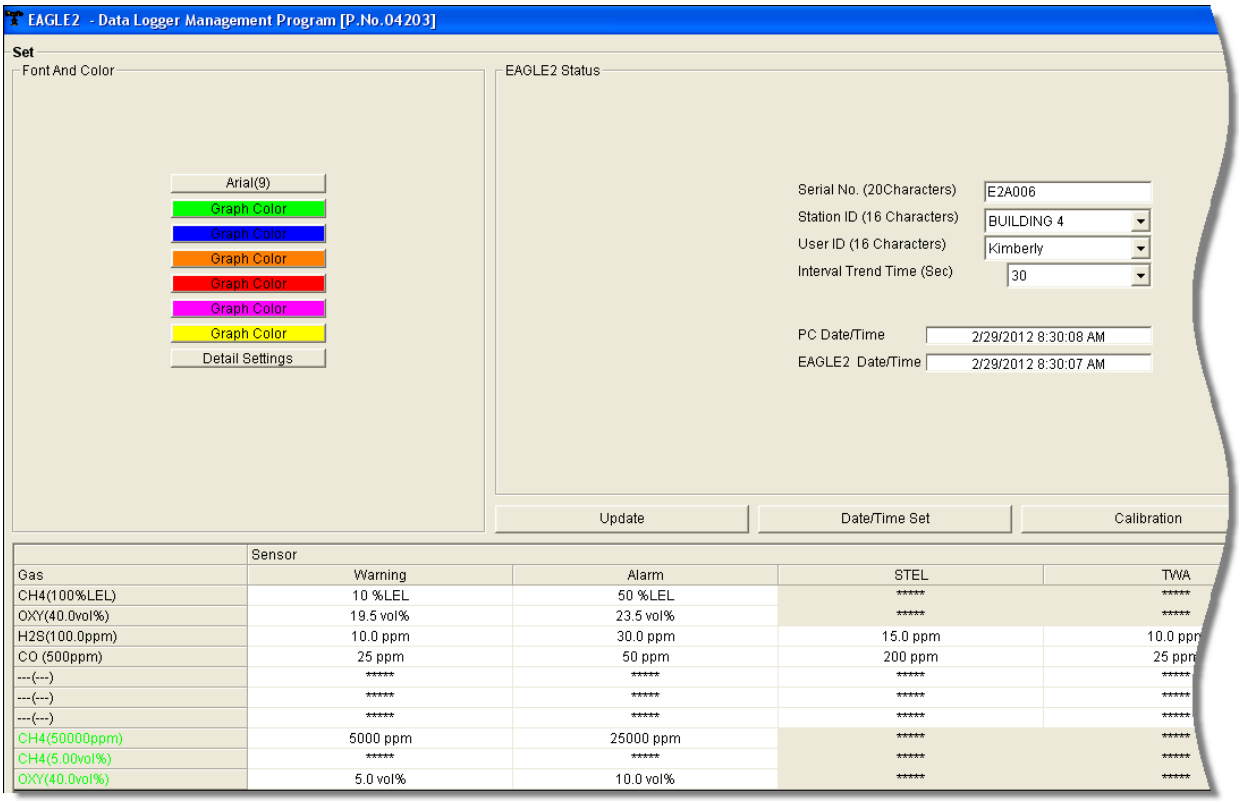


Figure 58: Set Window

6. Click **Detail Settings**.
7. The Station & User tab displays a list of Station IDs and User IDs. The first time the Eagle 2 is connected to the Eagle 2 Data Logger Management Program, this list will be blank. No Station IDs or User IDs are loaded into the Eagle 2 at the factory. These are user-defined parameters that may only be configured using the Eagle 2 Data Logger Management Program. Up to 128 Station IDs and up to 32 User IDs may be defined.

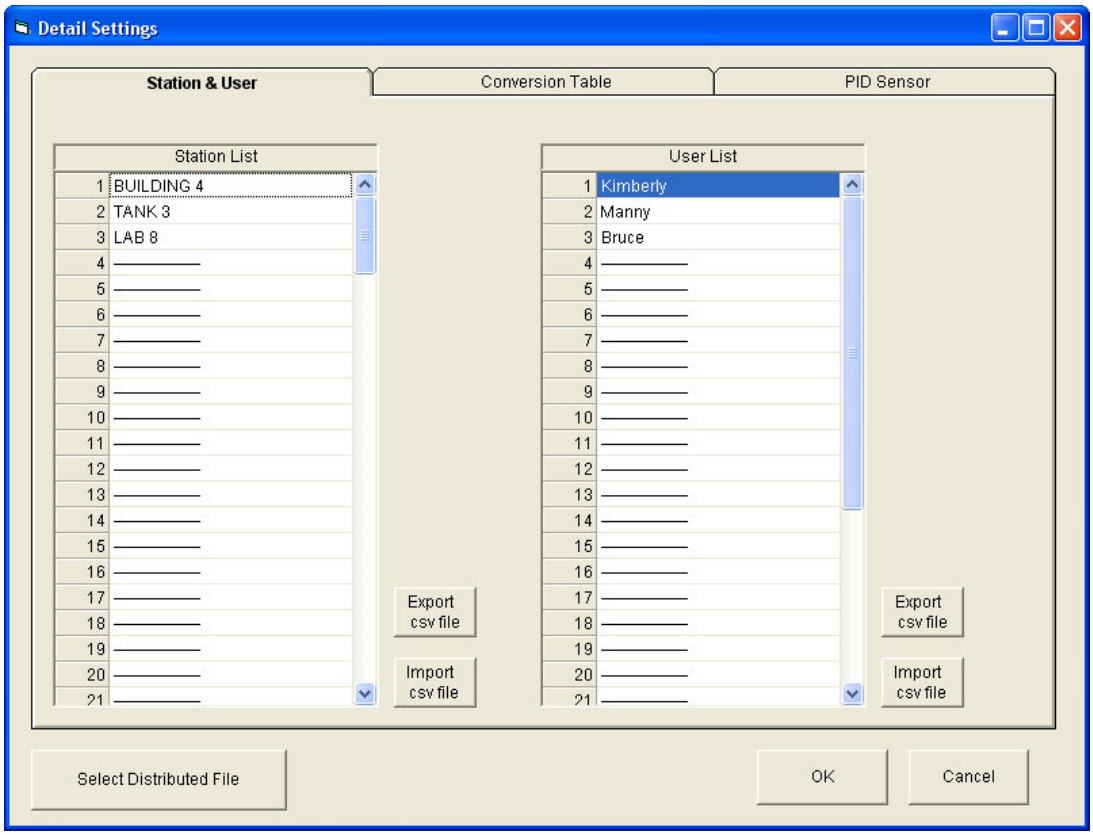


Figure 59: Station & User Tab

8. To edit the Station ID or User ID list, you will need to export a csv (comma separated values) file from the program, edit the file, and import it back into the program.

9. To create a csv file for editing, click the “Export csv file” button located to the right of the Station ID list or the User ID list.

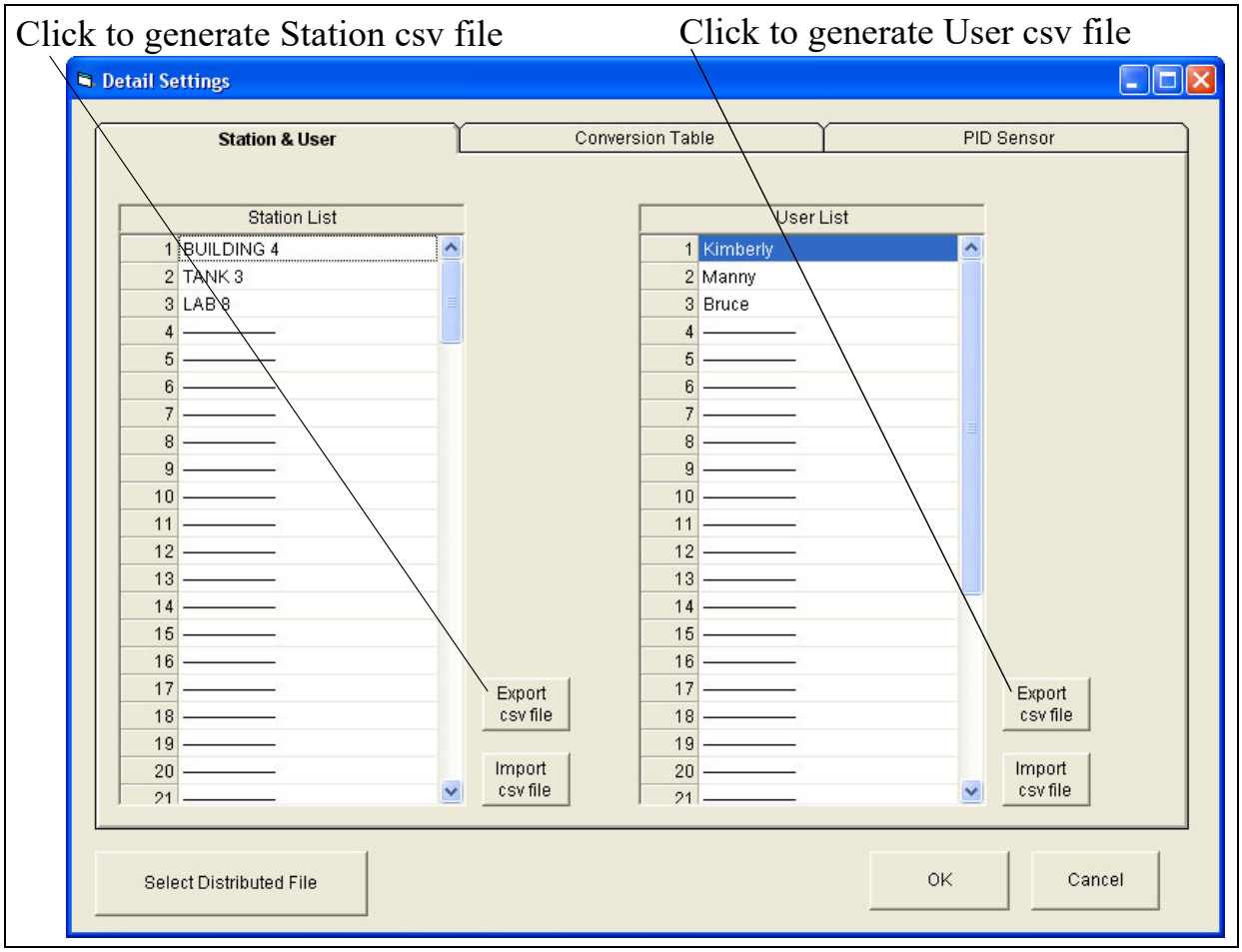


Figure 60: Station csv File Export

10. Navigate to the location you would like to save the csv file, type in a file name, and click Save.

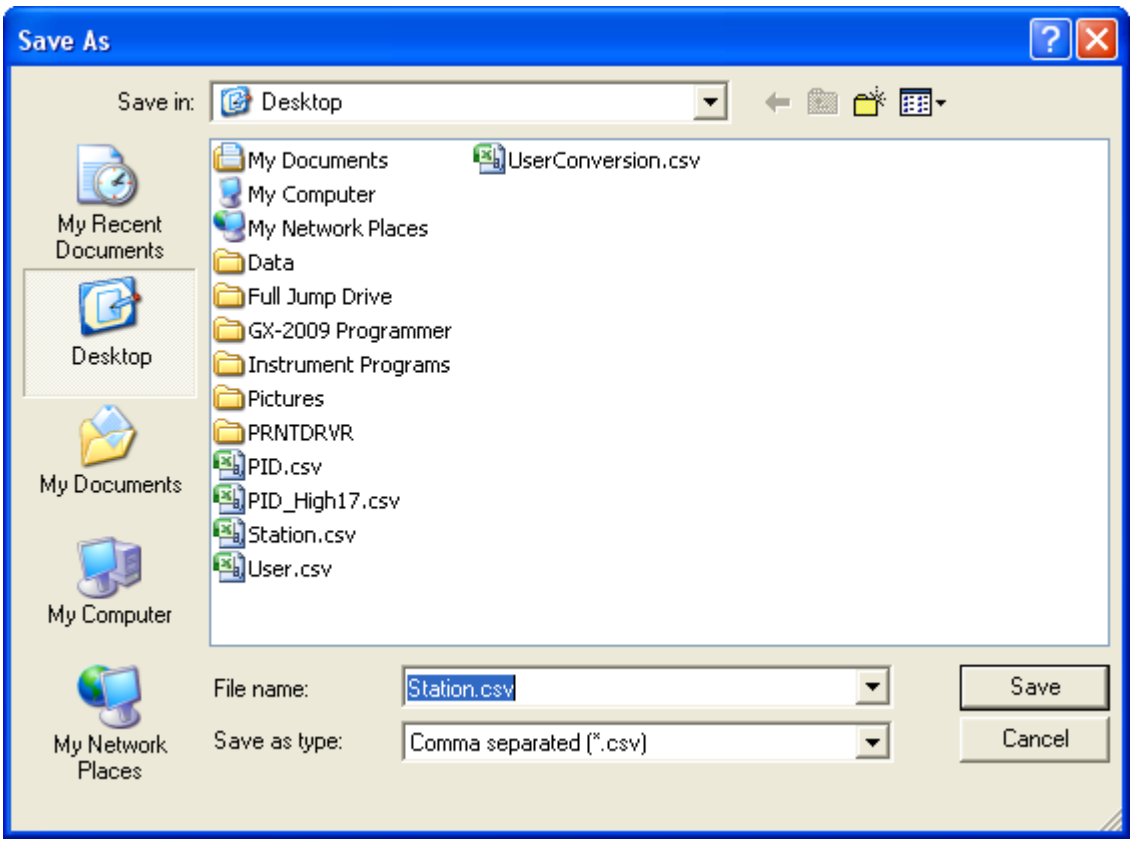


Figure 61: Station csv File Save As

11. The csv files can be opened, edited, and saved using a word processing program such as Word, WordPad, or Notepad. The Station and User csv files consist of the Station or User ID number and its associated name. Below is an example of a Station csv file opened in WordPad.

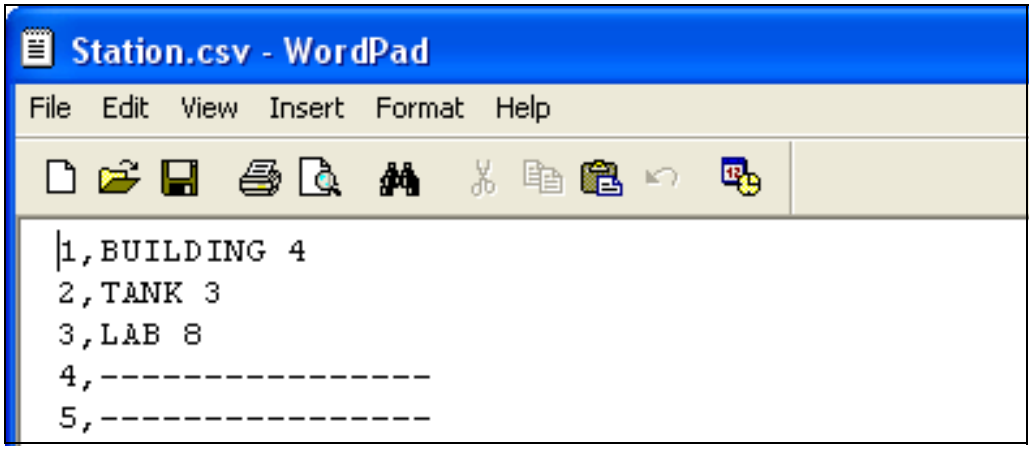


Figure 62: Station csv File

12. Any existing Station or User IDs will be displayed. Undefined Station or User IDs will appear as dashes. To edit a Station or User ID, delete either the existing name or the dashes and replace them with the desired name. The name may consist of any letter, number, or character. If desired, you can save multiple Station and User ID files.

13. In the Station and User tab, click “Import csv file” for either the Station ID or User ID.

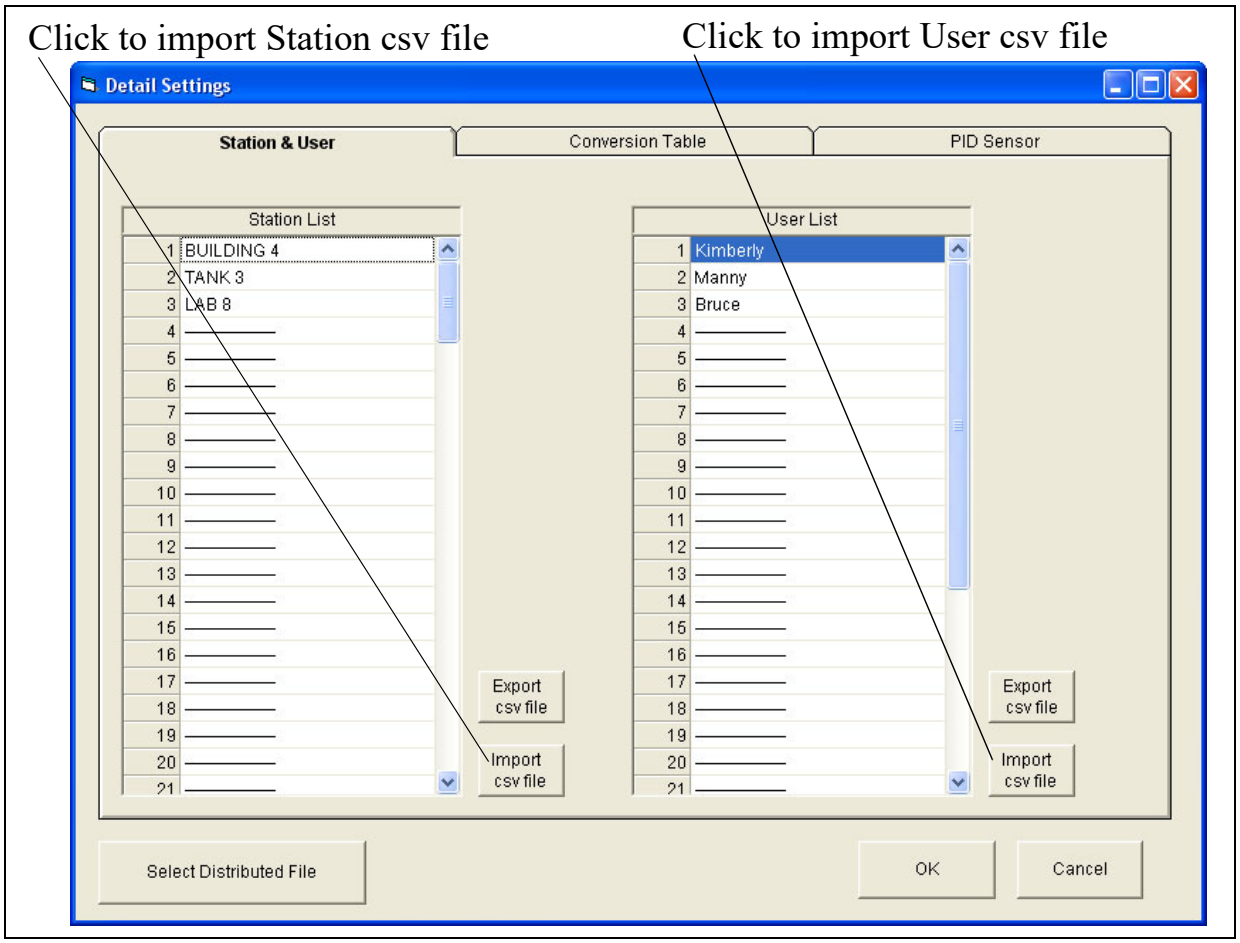


Figure 63: Import csv File

14. Select the file you want to import and click Open.

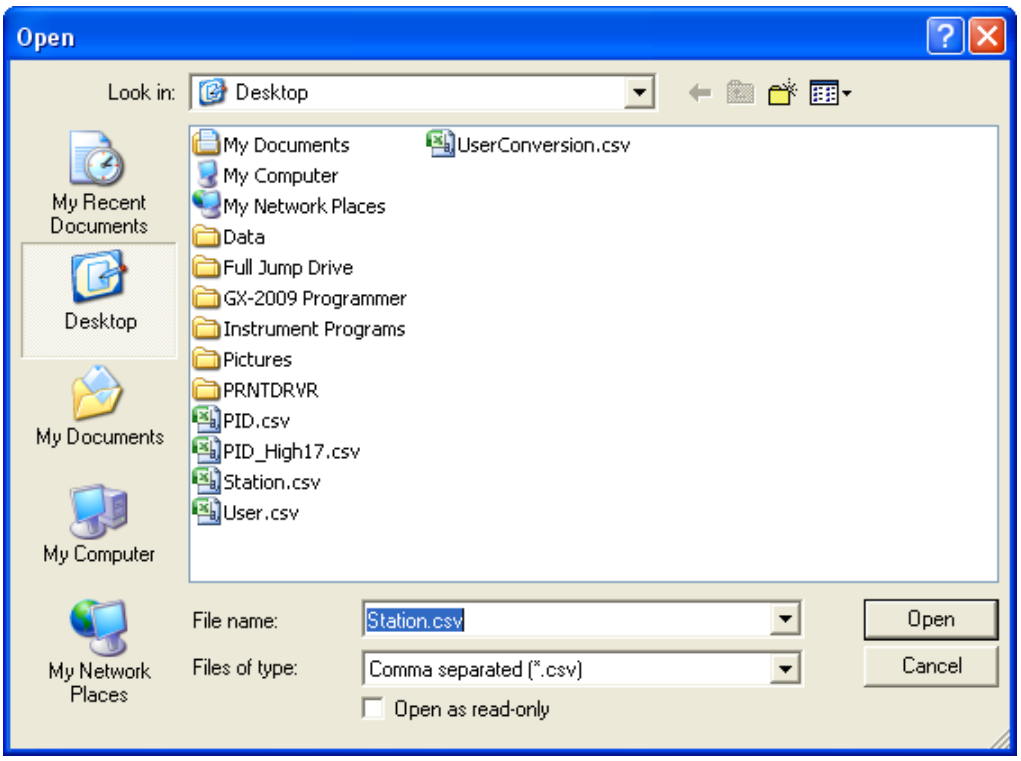


Figure 64: Station csv File Save As

15. Once the Station ID and/or User ID lists have been imported, click OK to save changes and return to the Set window.

    If you do not want to save the changes, click Cancel.

16. The new station and user ID lists will be visible in the Station ID and User ID selection boxes in the Set window. Use the drop down menu to select a current station and user ID for the instrument.

17. To upload the new information from the Data Logger Management Program to the Eagle 2, click the Update button in the Set window.

18. Click Yes in the confirmation window that appears.

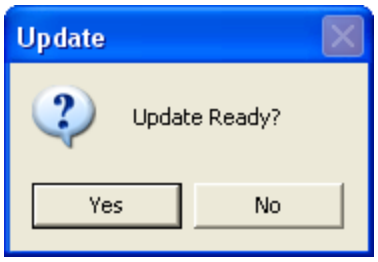
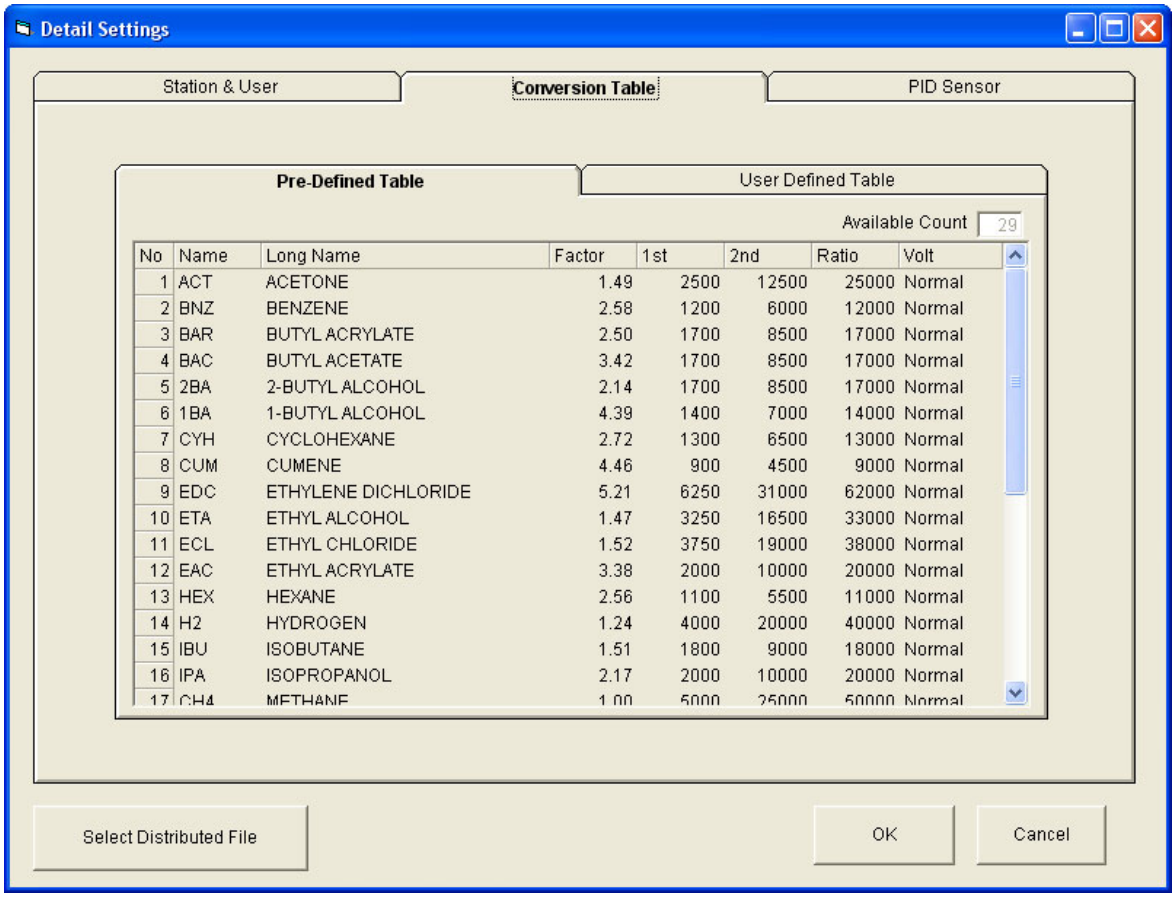


Figure 65: Update Confirmation Window

Conversion Table Tab for Catalytic Sensor

The Conversion Table tab is used to view the pre-defined relative response gases for the catalytic combustible channel and to edit or add user-defined gases. The pre-defined gases can be found in the Pre-Defined Table tab while the user-defined gases can be found under the User-Defined Table tab.



No	Name	Long Name	Factor	1st	2nd	Ratio	Volt
1	ACT	ACETONE	1.49	2500	12500	25000	Normal
2	BNZ	BENZENE	2.58	1200	6000	12000	Normal
3	BAR	BUTYL ACRYLATE	2.50	1700	8500	17000	Normal
4	BAC	BUTYL ACETATE	3.42	1700	8500	17000	Normal
5	2BA	2-BUTYL ALCOHOL	2.14	1700	8500	17000	Normal
6	1BA	1-BUTYL ALCOHOL	4.39	1400	7000	14000	Normal
7	CYH	CYCLOHEXANE	2.72	1300	6500	13000	Normal
8	CUM	CUMENE	4.46	900	4500	9000	Normal
9	EDC	ETHYLENE DICHLORIDE	5.21	6250	31000	62000	Normal
10	ETA	ETHYL ALCOHOL	1.47	3250	16500	33000	Normal
11	ECL	ETHYL CHLORIDE	1.52	3750	19000	38000	Normal
12	EAC	ETHYL ACRYLATE	3.38	2000	10000	20000	Normal
13	HEX	HEXANE	2.56	1100	5500	11000	Normal
14	H2	HYDROGEN	1.24	4000	20000	40000	Normal
15	IBU	ISOBUTANE	1.51	1800	9000	18000	Normal
16	IPA	ISOPROPANOL	2.17	2000	10000	20000	Normal
17	CH4	METHANE	1.00	5000	25000	50000	Normal

Figure 66: Conversion Table

There are 8 columns in both the Pre-Defined Table tab and the User-Defined Table tab:

- No
  This column represents the gas number. The gas numbers are 1-30.
- Name
  This is what will appear in the Relative Response list of gases. The name can be up to 3 characters long and the characters must be upper case letters or numbers. No special characters may be used in the Name column.
- Long Name
  The Long Name column is used to better describe the target gas. It may contain any character in upper- or lower-case.

- Factor
  This value is the response factor for the listed gas relative to methane. The factor for each pre-defined gas is factory defined. The factor for any user-defined gases must be obtained through testing as described in “Obtaining a Relative Response Factor” on page 72. Even if not all of the user-defined catalytic combustible channels are being defined, the Factor column must have a valid number entered. A valid number for the Factor is a value between 0.01 and 25.00.
- 1st
  This column is for the low alarm point of each gas in ppm units.
- 2nd
  This column is for the high alarm point of each gas in ppm units.
- Ratio
  The ratio is the ppm value of the LEL for each gas. This value is specific to each gas and can be easily determined. The maximum value it may be set to is 150,000 ppm. If an invalid number is entered, the box will turn red when the csv file is imported back into the Data Logger Management Program.

NOTE: If you define a gas whose LEL is above 50,000 ppm, the %LEL reading in Measuring Mode will reflect the defined ppm ratio, but the ppm reading in Measuring Mode will not indicate above 50,000 ppm. For example, if you set the ratio to be 150,000 ppm and set the catalytic combustible channel to display the reading in ppm, the gas reading will not indicate higher than 50,000 ppm, the equivalent of 33 %LEL and 5% volume for this ratio, but will continue to indicate %LEL readings up to 100 %LEL and %volume readings up to 15 %volume, the equivalent of 150,000 ppm, if the display units are changed to %LEL or %volume. In addition, all adjustable ppm parameters cannot be set higher than 50,000 ppm.

- Volt
  This value determines the sensor voltage for the catalytic combustible sensor. It can be set to 1.3 or 2.4. When set to 1.3, the sensor is in methane elimination mode. When set to 2.4, the sensor is reading at full response. Even if not all of the user-defined catalytic combustible channels are being defined, the Volt column must have a valid number entered. A valid number for the Volt column is either 1.3 or 2.4.

While the pre-defined gases may not be edited, the 5 user-defined gases may be edited by doing the following:

1. With the Data Logger Management Program running, click the **Set** button to display the Set window. Click the Detail Settings button to display the Detail Settings window. Click on the Conversion Table tab and then click on the User-Defined Table tab.

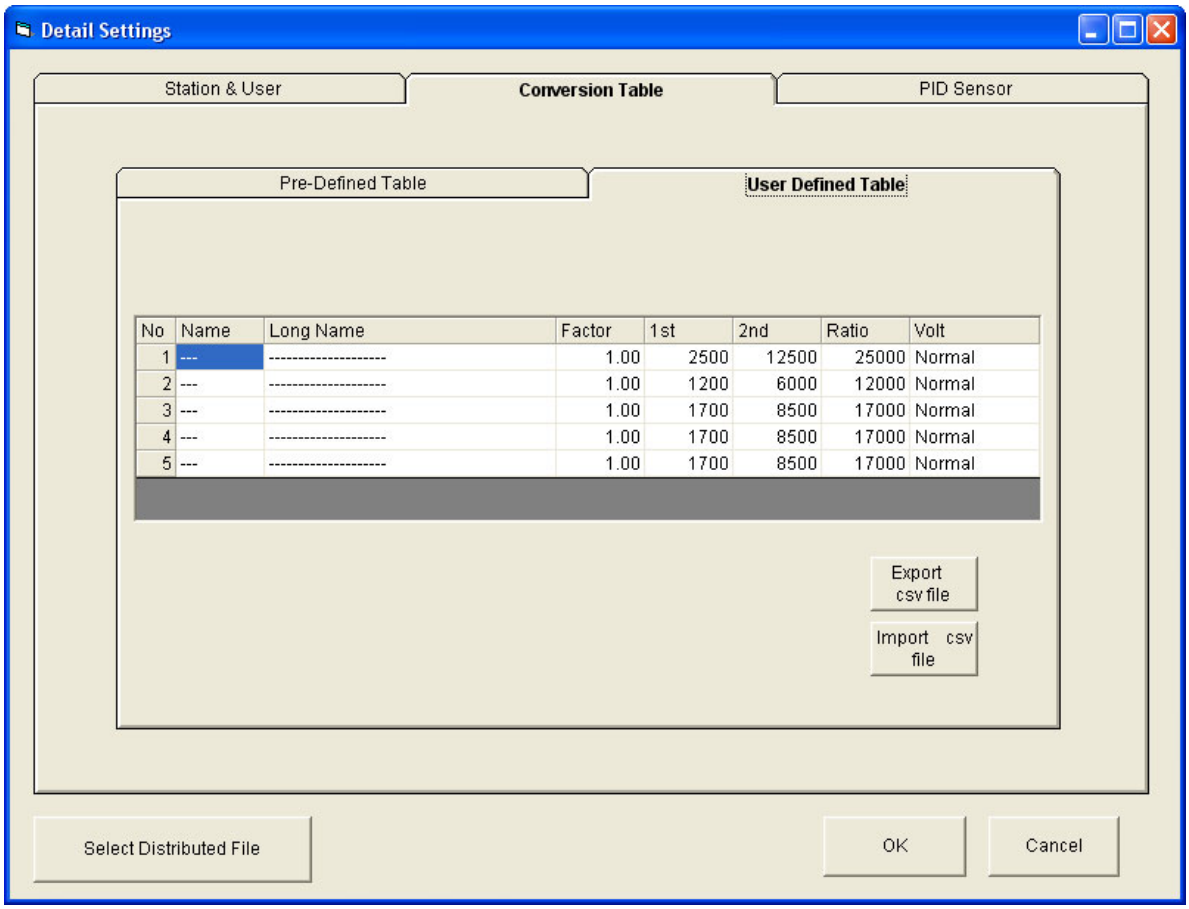


Figure 67: User-Defined Table

2. If no user-defined gases have been previously defined for the connected instrument, the columns in User-Defined Table will be blank. Any previously defined gases will appear.
3. Export the current data by pressing the “Export csv file” button. Choose the file path you wish to save the file in.

4. Open the csv file using Notepad, Word, or WordPad. The example below shows a csv file opened in WordPad. The list of gases are associated with the numbers 1-5.

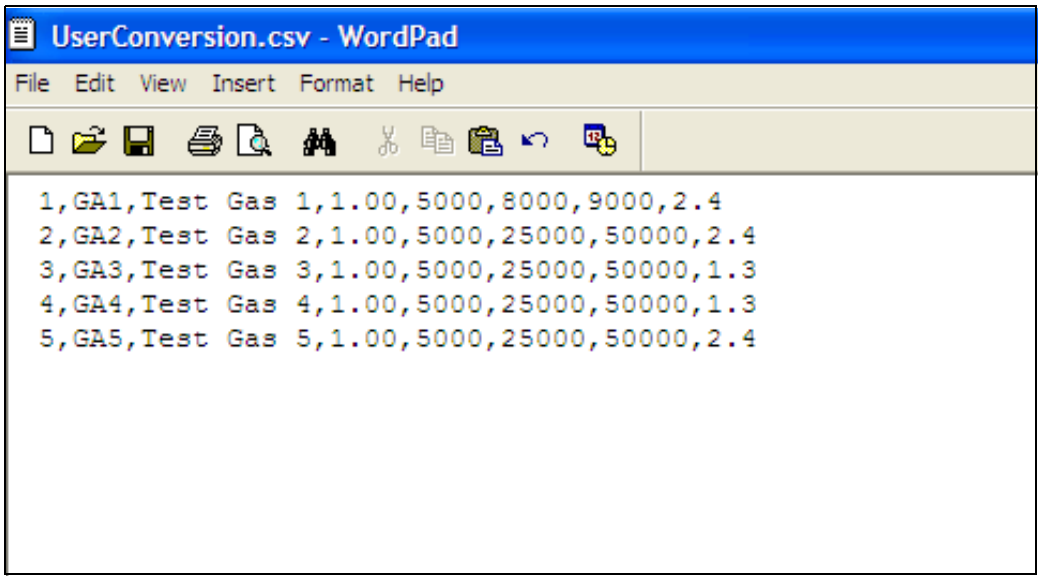


Figure 68: CSV File

If there were no previously defined gases, the csv file will appear as the following:

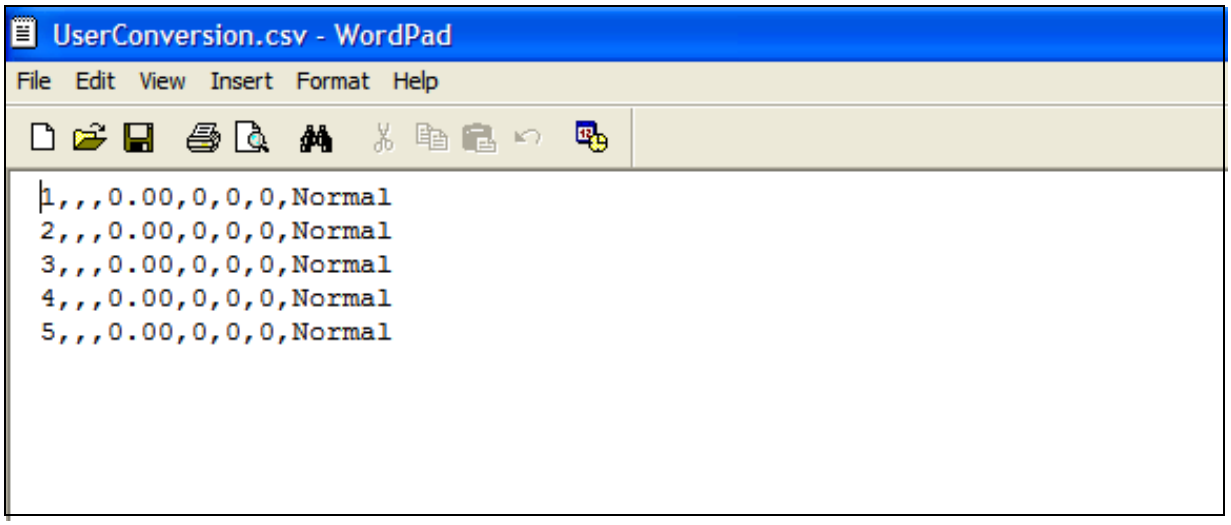


Figure 69: Blank CSV File

5. The values in the csv file are all separated by commas. These values are in the same order as the columns in the Data Logger Management Program. The first value is the gas number, the second is the gas name, etc.
6. Edit the values you wish to change and save and close the file.
7. Return to the Data Logger Management Program with the User-Defined Table tab still up and press “Import csv file”.
8. Choose the file you just edited and press “Open”.
9. The values you entered in the csv file will appear in the User-Defined Table.

10. If the program finds anything wrong with the values that were entered, the box containing those values will turn red. Make sure that you have entered valid characters for each field.
11. Click OK to save the changes and return to the Set window.

    If you do not want to save the changes, click Cancel.
12. To upload the new information from the Data Logger Management Program to the Eagle 2, click the Update button in the Set window.
13. Click Yes in the confirmation window that appears.

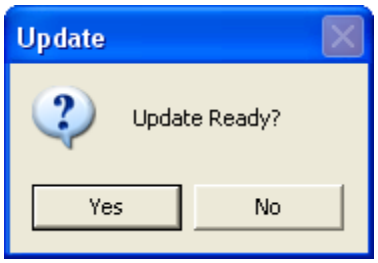
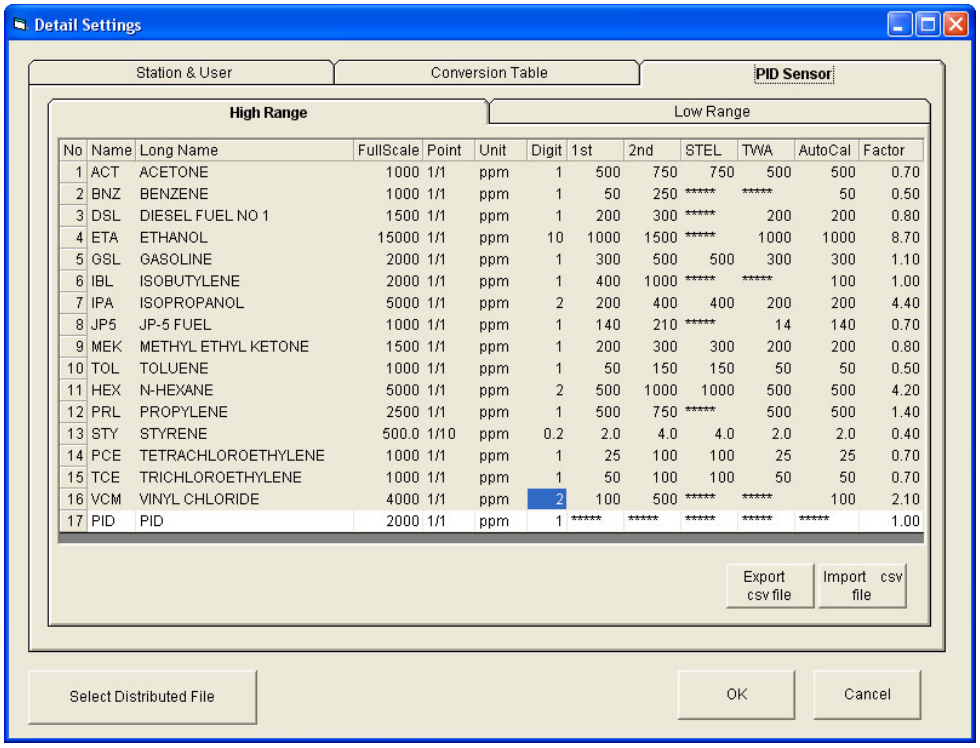


Figure 70: Update Confirmation Window

PID Sensor Tab

The PID Sensor tab is used to view the pre-defined relative response gases and to view or define the 1 user-defined relative response gas. Every gas has a low and high range which are displayed in the Low Range tab and High Range tab, respectively.



No	Name	Long Name	FullScale	Point	Unit	Digit	1st	2nd	STEL	TWA	AutoCal	Factor
1	ACT	ACETONE	1000	1/1	ppm	1	500	750	750	500	500	0.70
2	BNZ	BENZENE	1000	1/1	ppm	1	50	250	*****	*****	50	0.50
3	DSL	DIESEL FUEL NO 1	1500	1/1	ppm	1	200	300	*****	200	200	0.80
4	ETA	ETHANOL	15000	1/1	ppm	10	1000	1500	*****	1000	1000	8.70
5	GSL	GASOLINE	2000	1/1	ppm	1	300	500	500	300	300	1.10
6	IBL	ISOBUTYLENE	2000	1/1	ppm	1	400	1000	*****	*****	100	1.00
7	IPA	ISOPROPANOL	5000	1/1	ppm	2	200	400	400	200	200	4.40
8	JP5	JP-5 FUEL	1000	1/1	ppm	1	140	210	*****	14	140	0.70
9	MEK	METHYL ETHYL KETONE	1500	1/1	ppm	1	200	300	300	200	200	0.80
10	TOL	TOLUENE	1000	1/1	ppm	1	50	150	150	50	50	0.50
11	HEX	N-HEXANE	5000	1/1	ppm	2	500	1000	1000	500	500	4.20
12	PRL	PROPYLENE	2500	1/1	ppm	1	500	750	*****	500	500	1.40
13	STY	STYRENE	500.0	1/10	ppm	0.2	2.0	4.0	4.0	2.0	2.0	0.40
14	PCE	TETRACHLOROETHYLENE	1000	1/1	ppm	1	25	100	100	25	25	0.70
15	TCE	TRICHLOROETHYLENE	1000	1/1	ppm	1	50	100	100	50	50	0.70
16	VCM	VINYL CHLORIDE	4000	1/1	ppm	2	100	500	*****	*****	100	2.10
17	PID	PID	2000	1/1	ppm	1	*****	*****	*****	*****	*****	1.00

Figure 71: PID Sensor

There are 13 columns in both the High and Low Range tabs:

- No
  This column represents the gas number. They are numbered 1-17.
- Name
  This is what will appear in the Relative Response list of gases. The name can be up to 3 characters long and the characters must be upper case letters or numbers. No special characters may be used in the Name column.
- Long Name
  The Long Name column is used to better describe the target gas. It may contain any character in upper- or lower-case.
- Full Scale
  This is the full scale value for the target gas.
- Point
  The point value indicates to what decimal place the gas readings are shown. A value of 1/1 indicates a reading to the “ones” place while a value of 1/100 indicates a reading to the “hundredths” place.
- Unit
  The unit describes what units the gas reading is provided in. All units are in ppm. While this parameter may be changed in the csv file, units of ppm are the only acceptable units and changing this parameter to %LEL or %vol will change the unit box to red.
- Digit
  The digit is the increment of the gas readings.
- 1st
  This column is for the low alarm point of each gas in ppm units.
- 2nd
  This column is for the high alarm point of each gas in ppm units.
- STEL
  The STEL column displays the STEL values for each gas.
- TWA
  The TWA column displays the TWA values for each gas.
- AutoCal
  The AutoCal values are those that come up during the auto calibration procedure. They are default values that may be changed if the gas concentration in the calibration cylinder is different.
- Factor
  This value is the Relative Response Factor for the PID channel. The factor for each pre-defined gas is factory defined. The factor for the user defined gas must be obtained from Table 5 on page 73 or through testing as described in “Obtaining a Relative Response Factor” on page 72. A valid character for the Factor is a value between 0.01 and 25.00.

There are limitations for the full scale and increment values that depend on the factor for both the high range and the low range. Table 2 and Table 3 below list these limitations.

Table 2: High Range PID

Factor	Full Scale (ppm)	Increment
0.25-0.49	500	0.2
0.50-0.74	1000	1
0.75-0.99	1500	1
1.00-1.24	2000	1
1.25-1.49	2500	1
1.50-1.99	3000	2
2.00-2.49	4000	2
2.50-4.99	5000	2
5.00-7.49	10000	10
7.50-9.99	15000	10
10.00-14.49	20000	10
15.00-24.49	30000	20
25.00	50000	20

Table 3: Low Range PID

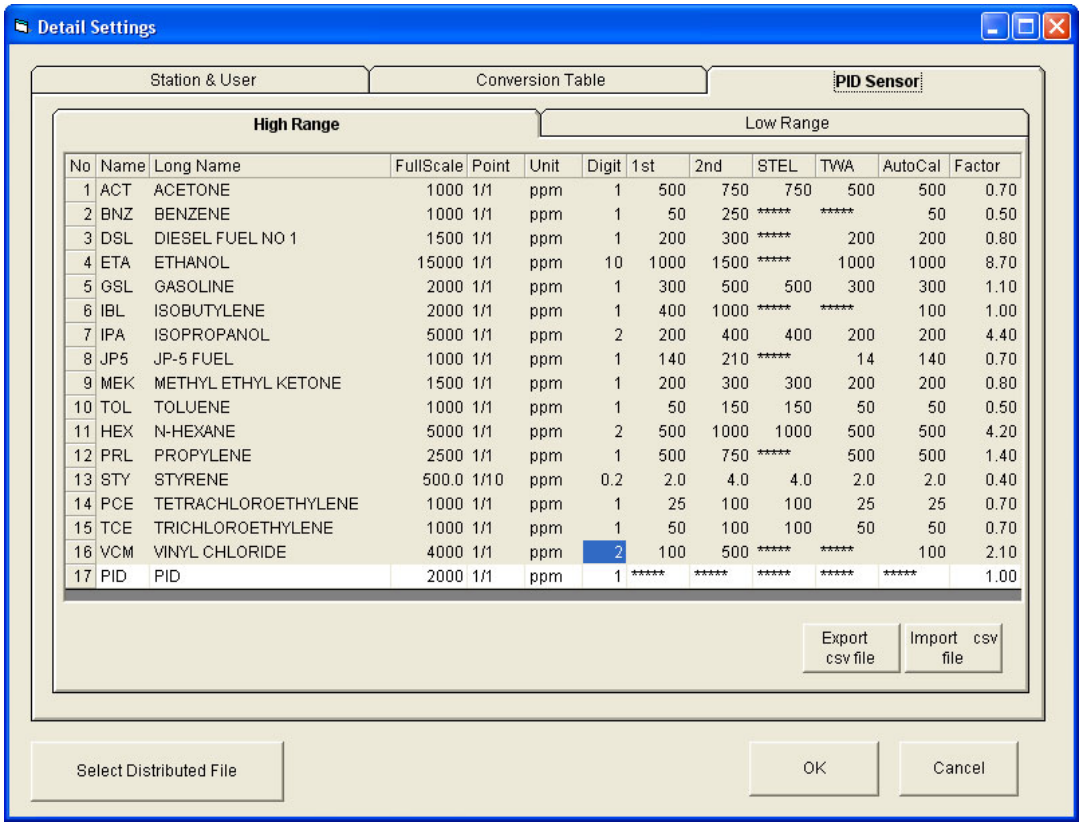
Factor	Full Scale (ppm)	Increment
0.20-0.29	10.00	0.01
0.30-0.39	15.00	0.01
0.40-0.49	20.00	0.01
0.50-0.59	25.00	0.01
0.60-0.79	30.00	0.02
0.80-0.99	40.00	0.02
1.00-1.99	50.00	0.02
2.00-2.99	100.0	0.1
3.00-3.99	150.0	0.1
4.00-5.99	200.0	0.1

Table 3: Low Range PID

Factor	Full Scale (ppm)	Increment
6.00-7.99	300.0	0.2
8.00-9.99	400.0	0.2
10.00	500.0	0.2

While the pre-defined gases may not be edited, the 1 user-defined gas may be edited by doing the following:

1. With Data Logger Management Program running, click on the Set button to display the Set window. Click the Detail Settings button to display the Detail Settings window. Click on the PID Sensor tab and then click on the High Range tab.



No	Name	Long Name	FullScale	Point	Unit	Digit	1st	2nd	STEL	TWA	AutoCal	Factor
1	ACT	ACETONE	1000	1/1	ppm	1	500	750	750	500	500	0.70
2	BNZ	BENZENE	1000	1/1	ppm	1	50	250	*****	*****	50	0.50
3	DSL	DIESEL FUEL NO 1	1500	1/1	ppm	1	200	300	*****	200	200	0.80
4	ETA	ETHANOL	15000	1/1	ppm	10	1000	1500	*****	1000	1000	8.70
5	GSL	GASOLINE	2000	1/1	ppm	1	300	500	500	300	300	1.10
6	IBL	ISOBUTYLENE	2000	1/1	ppm	1	400	1000	*****	*****	100	1.00
7	IPA	ISOPROPANOL	5000	1/1	ppm	2	200	400	400	200	200	4.40
8	JP5	JP-5 FUEL	1000	1/1	ppm	1	140	210	*****	14	140	0.70
9	MEK	METHYL ETHYL KETONE	1500	1/1	ppm	1	200	300	300	200	200	0.80
10	TOL	TOLUENE	1000	1/1	ppm	1	50	150	150	50	50	0.50
11	HEX	N-HEXANE	5000	1/1	ppm	2	500	1000	1000	500	500	4.20
12	PRL	PROPYLENE	2500	1/1	ppm	1	500	750	*****	500	500	1.40
13	STY	STYRENE	500.0	1/10	ppm	0.2	2.0	4.0	4.0	2.0	2.0	0.40
14	PCE	TETRACHLOROETHYLENE	1000	1/1	ppm	1	25	100	100	25	25	0.70
15	TCE	TRICHLOROETHYLENE	1000	1/1	ppm	1	50	100	100	50	50	0.70
16	VCM	VINYL CHLORIDE	4000	1/1	ppm	2	100	500	*****	*****	100	2.10
17	PID	PID	2000	1/1	ppm	1	*****	*****	*****	*****	*****	1.00

Figure 72: High Range Tab

2. If no user-defined PID gas has been previously defined for the connected instrument, the name and long name will both appear as PID for the High Range and Low Range tabs. The full scale, digit, and factor values will appear as shown in Table 4 below. The rest of the fields will contain asterisks (*****).

Table 4: Default Values for User Defined PID Gas

	Full Scale (ppm)	Digit	Factor
High Range	2000	2	1.00
Low Range	50.00	0.02	1.00

3. Export the current data by pressing the "Export csv file" button. Choose the file path you wish to save the file in.

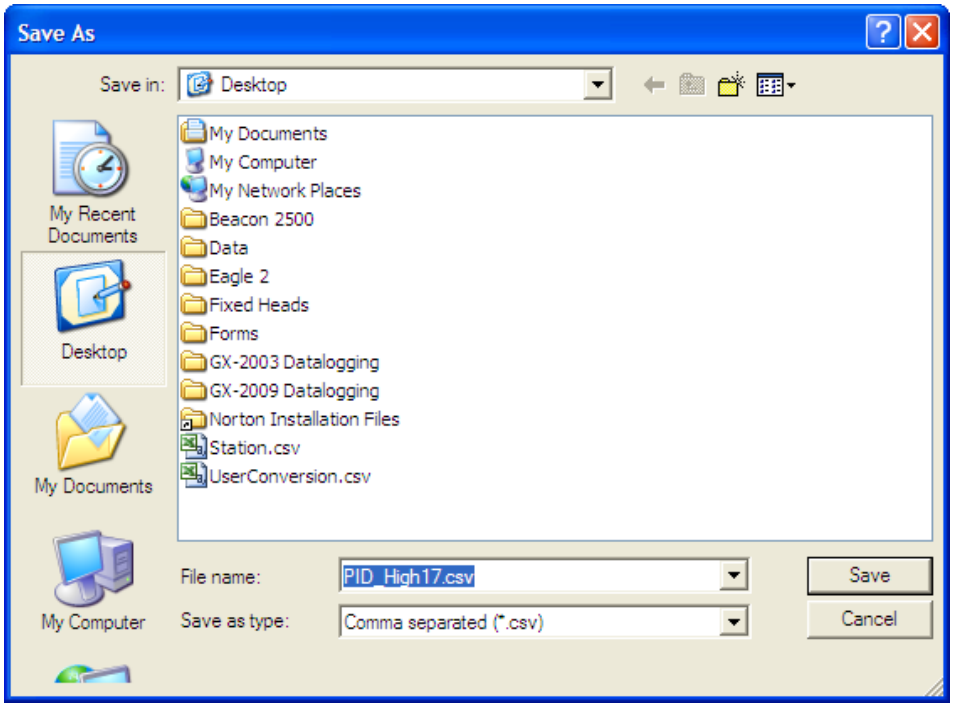


Figure 73: Save As

4. Open the csv file using Notepad, Word, or WordPad. The example below shows a csv file opened in WordPad. The user defined PID gas is number 17.

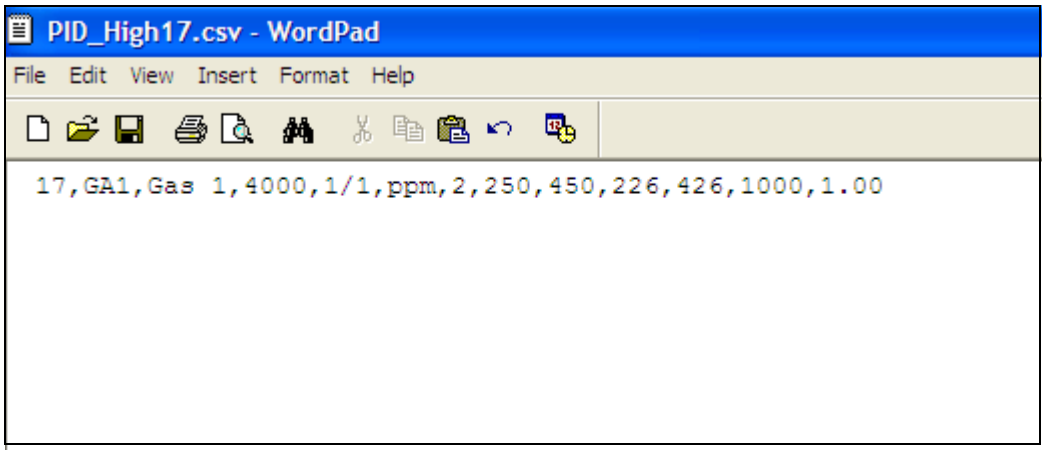


Figure 74: CSV File

5. The values in the csv file are all separated by commas. These values are in the same order as the columns in the Data Logger Management Program. The first value is the gas number, the second is the gas name, etc.
6. Edit the values you wish to change and save the file.
7. Return to the Data Logger Management Program with the High Range tab still up and press "Import csv file".
8. Choose the file you just edited and press "Open".
9. The values you entered in the csv file will appear in the High Range tab.
10. If the program finds anything wrong with the values that were entered, the box containing those values will turn red. Make sure that you have entered valid characters for each field.

NOTE: The Name and Long Name for the Low Range and High Range tabs must agree. If they do not, the program will keep the Low Range Name and Long Name and change the High Range to agree with it.

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11. Repeat step 1-step 10 for the Low Range tab.
12. Click OK to save the changes and return to the Set window.

    If you do not want to save the changes, click Cancel.
13. To upload the new information from the Data Logger Management Program to the Eagle 2, click the Update button in the Set window.

14. Click Yes in the confirmation window that appears.

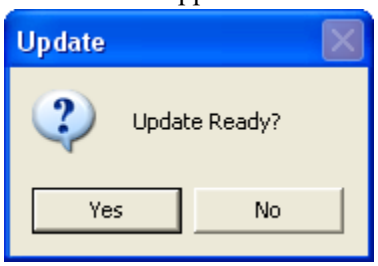

Figure 75: Update Confirmation Window

Obtaining a Relative Response Factor

If the gas that you want to monitor on the catalytic combustible or PID channel is not included in the catalytic or PID relative response lists, you may define up to 5 gases for the catalytic combustible channel using the Conversion Table tab and 1 gas for the PID channel using the PID Sensor tab. Testing must be done using the desired target gas in order to obtain the response factor value for the catalytic combustible channel. To determine the relative response factor value for the PID channel, first look in Table 5 for the desired gas. If the desired gas does not appear in the table, you must obtain the response factor through the testing procedure described below.

To determine the relative response factor value for the catalytic or PID channels, do the following:

1. For determining the catalytic combustible channel relative response factor, calibrate the catalytic combustible channel to methane. For determining the PID channel relative response factor, calibrate the PID channel to isobutylene.
2. Obtain a gas sample of known concentration for the target gas you wish to define. The sample needs to be at least 10% of the full scale but RKI Instruments, Inc. recommends using 50% of the full scale. If the concentration tested results in an overscale reading, test a lower concentration.
3. Apply the gas sample to the EAGLE 2 and take note of the reading. If the gas sample is of 50 %LEL concentration and the EAGLE 2 display shows a reading of 25 %LEL, then the factor for that gas is 2. Conversely, if the gas sample is of 50 %LEL concentration and the EAGLE 2 display shows a reading of 100 %LEL, then the factor for that gas is 0.5. This conversion factor value is what you will enter in the Factor column of the gas you are defining.

Table 5 below has 4 columns:

- Gas/VOC-The most common name for the VOC (volatile organic compound)
- CAS No.-Sometimes it is easier to identify a VOC from the internationally recognized CAS (Chemical Abstracts Service) number
- Formula-Molecular formula for each VOC
- Response Factor (RF)-The relative response factor for each gas. This is the value that is plugged into the Eagle 2 Maintenance Data Loader Program.

Some abbreviations that appear in the table are:

- ZR-No response
- NV-Cannot be measured

Table 5: Response Factors Relative to Isobutylene

Gas/ VOC	CAS No.	Formula	Relative Response
Acetaldehyde	75-07-0	C2H4O	4.9
Acetic Acid	64-17-7	C2H4O2	36
Acetic Anhydride	108-24-7	C4H6O3	4
Acetone	67-64-1	C3H6O	0.7
Acetonitrile	75-05-8	CH3CN	ZR
Acetylene	74-86-2	C2H2	ZR
Acrolein	107-02-8	C3H4O	4
Acrylic Acid	79-10-7	C3H4O2	2.7
Acrylonitrile	107-13-1	C3H3N	ZR
Allyl alcohol	107-18-6	C3H6O	2.1
Allyl chloride	107-05-1	C3H5Cl	4.5
Ammonia	7664-41-7	NH3	8.5
Amyl acetate, n-	628-63-7	C7H14O2	1.8
Amyl alcohol	71-41-0	C5H12O	3.2
Aniline	62-53-3	C6H7N	0.5
Anisole	100-66-3	C7H8O	0.5
Arsine	7784-42-1	AsH3	2.5
Asphalt, petroleum fumes	8052-42-4		1
Benzaldehyde	100-52-7	C7H6O	0.9
Benzene	71-43-2	C6H6	0.5
Benzenethiol	108-98-5	C6H5SH	0.7
Benzonitrile	100-47-0	C7H5N	0.7
Benzyl alcohol	100-51-6	C7H8O	1.3
Benzyl chloride	100-44-7	C7H7Cl	0.6
Benzyl formate	104-57-4	C8H8O2	0.8
Biphenyl	92-52-4	C12H10	0.4
Bis(2,3-epoxypropyl) ether	7/5/2238	C6H10O3	3
Boron trifluoride	7637 07 2	BF3	ZR
Bromine	7726-95-6	Br2	20
Bromine pentafluoride	7789-30-2	BrF5	ZR
Bromobenzene	108-86-1	C6H5Br	0.7
Bromochloromethane	74-97-5	CH2ClBr	ZR
Bromoethane	74-96-4	C2H5Br	5
Bromoethyl methyl ether, 2-	6482-24-2	C3H7OBr	2.5
Bromoform	75-25-2	CHBr3	2.8
Bromopropane, 1-	106-94-5	C3H7Br	1.3
Bromotrifluoromethane	75-63-8	CF3Br	ZR
Butadiene	106-99-0	C4H6	0.8
Butadiene diepoxide, 1,3-	1464-53-5	C4H6O2	4
Butane, n-	106-97-8	C4H10	46
Butanol, 1-	71-36-3	C4H10O	4

Gas/ VOC	CAS No.	Formula	Relative Response
Buten-3-ol, 1-	598-32-3	C4H8O	1.2
Butene, 1-	106-98-9	C4H8	1.3
Butoxyethanol, 2-	111-76-2	C6H14O2	1.1
Butyl acetate, n-	123-86-4	C6H12O2	2.4
Butyl acrylate, n-	141-32-2	C7H12O2	1.5
Butyl lactate	138-22-7	C7H14O3	2.5
Butyl mercaptan	109-79-5	C4H10S	0.5
Butylamine, 2-	513-49-5	C4H11N	0.9
Butylamine, n-	109-73-9	C4H11N	1
Camphene	565-00-4	C10H16	0.5
Carbon dioxide	124-38-9	CO2	ZR
Carbon disulfide	75-15-0	CS2	1.4
Carbon monoxide	630-08-0	CO	ZR
Carbon tetrabromide	558-13-4	CBr4	3
Carbon tetrachloride	56-23-5	CCl4	ZR
Carbonyl sulphide	463-58-1	COS	ZR
Carvone, R-	6485-40-1	C10H14O	1
Chlorine	7782-50-5	Cl2	ZR
Chlorine dioxide	10049-04-4	ClO2	1
Chlorine trifluoride	7790-91-2	ClF3	ZR
Chloro-1,1,1,2-tetrafluoroethane	2837-89-0	C2HClF4	ZR
Chloro-1,1,1-trifluoroethane, 2-	75-88-7	C2H2ClF3	ZR
Chloro-1,1,2,2-tetrafluoroethane	354-25-6	C2HClF4	ZR
Chloro-1,1,2-trifluoroethane, 1-	421-04-5	C2H2ClF3	ZR
Chloro-1,1-difluoroethane, 1-	75-68-3	C2H3ClF2	ZR
Chloro-1,1-difluoroethane, 1-	75-68-3	C2H3ClF2	ZR
Chloro-1,1-difluoroethane, 2-	338-65-8	C2H3ClF2	ZR
Chloro-1,2,2-trifluoroethane	431-07-2	C2H2ClF3	ZR
Chloro-1,3-butadiene, 2-	126-99-8	C4H5Cl	3.2
Chloro-1-fluoroethane, 1-	1615-75-4	C2H4ClF	ZR
Chloro-2-fluoroethane, 1-	762-50-5	C2H4ClF	ZR
Chloroacetaldehyde	107-20-0	C2H3OCl	ZR
Chlorobenzene	108-90-7	C6H5Cl	0.5
Chlorodifluoromethane	75-45-6	CHClF2	ZR
Chloroethane	75-00-3	C2H5Cl	ZR
Chloroethanol 2-	107-07-3	C2H5ClO	10
Chloroethyl methyl ether, 2-	627-42-9	C3H7ClO	2.6
Chlorofluoromethane	593-70-4	CH2ClF	ZR
Chloroform	67-66-3	CHCl3	ZR
Chloromethane	74-87-3	CH3Cl	ZR
Chloropentafluoroethane	76-15-3	C2ClF5	ZR

Gas/ VOC	CAS No.	Formula	Relative Response
Chlorotoluene, o-	95-49-8	C7H7Cl	0.5
Chlorotoluene, p-	108-41-8	C7H7Cl	0.5
Chlorotrifluoroethylene	79-38-9	C2ClF3	1
Chlorotrifluoromethane	75-72-9	CClF3	ZR
Citral	5392-40-5	C10H16O	1
Citronellol	26489-01-0	C10H20O	1
Cresol, m-	108-39-4	C7H8O	1.1
Cresol, o-	95-48-7	C7H8O	1.1
Cresol, p-	106-44-5	C7H8O	1.1
Crotonaldehyde	4170-30-3	C4H6O	1
Cumene	98-82-8	C9H12	0.6
Cyanamide	420-04-2	CH2N2	ZR
Cyanogen bromide	506-68-3	CNBr	ZR
Cyanogen chloride	506-77-4	CNCl	ZR
Cyclohexane	110-82-7	C6H12	1.3
Cyclohexanol	108-93-0	C6H12O	2.9
Cyclohexanone	108-94-1	C6H10O	1.1
Cyclohexene	110-83-8	C6H10	0.8
Cyclohexylamine	108-91-8	C6H13N	1
Cyclopentane	287-92-3	C5H10	4
Decane, n-	124-18-5	C10H22	1
Diacetone alcohol	123-42-2	C6H12O2	0.8
Dibenzoyl peroxide	94-36-0	C14H10O4	0.8
Diborane	19287-45-7	B2H6	ZR
Dibromochloromethane	124-48-1	CHBr2Cl	10
Dibromodifluoromethane	75-61-6	CF2Br2	ZR
Dibromoethane 1,2-	106-93-4	C2H4Br2	2
Dibromotetrafluoroethane , 1,2-	124-73-2	C2F4Br2	ZR
Dibutyl hydrogen phosphate	107-66-4	HC8H18 PO4	4
Dichloro-1,1,1-trifluoroethane, 2,2-	306-83-2	C2HCl2F3	ZR
Dichloro-1,1-difluoroethane, 1,2-	1649-08-7	C2H2Cl2F2	ZR
Dichloro-1,2,2-trifluoroethane, 1,2-	354-23-4	C2HCl2F3	ZR
Dichloro-1,2-difluoroethane, 1,2-	631-06-1	C2H2Cl2F2	ZR
Dichloro-1-fluoroethane, 1,1-	1717-00-6	C2H3Cl2F	ZR
Dichloro-1-fluoroethane, 1,1-	1717-00-6	C2H3Cl2F	ZR
Dichloro-1-fluoroethane, 1,2-	430-57-9	C2H3Cl2F	ZR
Dichloro-1-propene, 2,3-	78-88-6	C3H4Cl2	1.4
Dichloro-2,2,-difluoroethane, 1,1-	79-35-6	C2H2Cl2F2	ZR
Dichloroacetylene	7572-29-4	C2Cl2	5

Gas/ VOC	CAS No.	Formula	Relative Response
Dichlorobenzene o-	95-50-1	C6H4Cl2	0.5
Dichlorodifluoromethane	75-71-8	CCl2F2	ZR
Dichloroethane 1,2-	107-06-2	C2H4Cl2	ZR
Dichloroethane, 1,1-	75-34-3	C2H4Cl2	ZR
Dichloroethene, 1,1-	75-35-4	C2H2Cl2	1
Dichloroethene, cis-1,2-	156-59-2	C2H2Cl2	0.8
Dichloroethene, trans-1,2-	540-59-0	C2H2Cl2	0.7
Dichloroethylene 1,2-	540-59-0	C2H2Cl2	0.8
Dichlorofluoromethane	75-43-4	CHFCl2	ZR
Dichloromethane	75-09-2	CH2Cl2	39
Dichloropropane, 1,2-	78-87-5	C3H6Cl2	ZR
Dichlorotetrafluoroethane, 1,1-	374-07-2	C2Cl2F4	ZR
Dichlorotetrafluoroethane, 1,2-	76-14-2	C2Cl2F4	ZR
Dicyclopentadiene	77-73-6	C10H12	0.9
Diesel Fuel	68334-30-5		0.8
Diethyl ether	60-29-7	C4H10O	0.9
Diethyl maleate	141-05-9	C8H12O4	2
Diethyl phthalate	84-66-2	C12H14O4	1
Diethyl sulphate	64-67-5	C4H10SO4	3
Diethyl sulphide	352-93-2	C4H10S	0.6
Diethylamine	109-89-7	C4H11N	1
Diethylaminoethanol, 2-	100-37-8	C6H15ON	2.7
Diethylaminopropylamine, 3-	104-78-9	C7H18N2	1
Difluoroethane, 1,1-	75-37-6	C2H4F2	ZR
Difluoroethane, 1,2-	624-72-6	C2H4F2	ZR
Difluoromethane	75-10-5	CH2F2	ZR
Dihydrogen selenide	7783 07 5	H2Se	1
Dihydroxybenzene, 1,2	120-80-9	C6H6O2	1
Dihydroxybenzene, 1,3	108-46-3	C6H6O2	1
Diisobutylene	107-39-1	C8H16	0.6
Diisopropyl ether	108-20-3	C6H14O	0.7
Diisopropylamine	108-18-9	C6H15N	0.7
Diketene	674-82-8	C4H4O2	2.2
Dimethoxymethane	109-87-5	C3H8O2	1.4
Dimethyl cyclohexane, 1,2-	583-57-3	C8H16	1.1
Dimethyl disulphide	624-92-0	C2H6S2	0.2
Dimethyl ether	115-10-6	C2H6O	1.3
Dimethyl phthalate	131-11-3	C10H10O4	1
Dimethyl sulphate	77-78-1	C2H6O4S	ZR
Dimethyl sulphide	75-18-3	C2H6S	0.5
Dimethylacetamide N,N-	127-19-5	C4H9NO	1.3
Dimethylamine	124-40-3	C2H7N	1.4
Dimethylaminoethanol	108-01-0	C4H11NO	1.5
Dimethylaniline, NN-	121-69-7	C8H11N	0.6

Gas/ VOC	CAS No.	Formula	Relative Response
Dimethylbutyl acetate	108-84-9	C8H16O2	1.6
Dimethylethylamine, NN-	598-56-1	C4H11N	0.8
Dimethylformamide	68-12-2	C3H7NO	0.9
Dimethylheptan-4-one, 2,6-	108-83-8	C9H18O	0.8
Dimethylhydrazine, 1,1-	57-14-7	C2H8N2	1
Dinitrobenzene, m-	99-65-0	C6H4N2O4	3
Dinitrobenzene, o-	528-29-0	C6H4N2O4	ZR
Dinitrobenzene, p-	100-25-4	C6H4N2O4	5
Dinonyl phthalate	84-76-4	C26H42O4	1
Dioxane 1,2-		C4H8O2	1.5
Dioxane 1,4-	123-91-1	C4H8O2	1.5
Dipentene	138-86-3	C10H16	0.9
Diphenyl ether	101-84-8	C12H10O	0.8
Disulphur decafluoride	5714-22-7	S2F10	ZR
Disulphur dichloride	10025-67-9	S2Cl2	3
Di-tert-butyl-p-cresol	2409-55-4	C11H16O	1
Divinylbenzene	1321-74-0	C10H10	0.4
Dodecanol	112-53-8	C12H26O	0.9
Enflurane	13838-16-9	C4H2F5ClO	ZR
Epichlorohydrin	106-89-8	C3H5ClO	8
Epoxypropyl isopropyl ether, 2,3-	4016-14-2	C6H12O2	1.1
Ethane	74-84-0	C2H6	ZR
Ethanol	64-17-5	C2H6O	8.7
Ethanolamine	141-43-5	C2H7NO	3
Ethoxy-2-propanol, 1-	1569-02-4	C5H10O2	2
Ethoxyethanol, 2-	110-80-5	C4H10O2	29.8
Ethoxyethyl acetate, 2-	111-15-9	C6H12O3	3
Ethyl (S)-(-)-lactate	97-64-3	C5H10O3	3
Ethyl acetate	141-78-6	C4H8O2	3.6
Ethyl acrylate	140-88-5	C5H8O2	2
Ethyl amine	75-04-7	C2H7N	1
Ethyl benzene	100-41-4	C8H10	0.5
Ethyl butyrate	105-54-4	C6H12O2	1
Ethyl chloroformate	541-41-3	C3H5O2Cl	80
Ethyl cyanoacrylate	7085-85-0	C6H7O2N	1.5
Ethyl decanoate	110-38-3	C12H24O2	1.8
Ethyl formate	109-94-4	C3H6O2	30
Ethyl hexanoate	123-66-0	C8H16O2	2.6
Ethyl hexanol, 2-	105-76-7	C8H18O	1.5
Ethyl hexyl acrylate, 2-	103-11-7	C11H20O2	1
Ethyl mercaptan	75-08-1	C2H6S	0.7
Ethyl octanoate	106-32-1	C10H20O2	2.3
Ethylene	74-85-1	C2H4	8
Ethylene dinitrate	628-96-6	C2H4O6N2	ZR

Gas/ VOC	CAS No.	Formula	Relative Response
Ethylene glycol	107-21-1	C2H6O2	20
Ethylene oxide	75-21-8	C2H4O	15
Ferrocene	102-54-5	C10H10Fe	0.8
Fluorine	7782-41-4	F2	ZR
Fluoroethane	353-33-6	C2H5F	ZR
Fluoromethane	593-53-3	CH3F	ZR
Formaldehyde	50-00-0	CH2O	ZR
Formamide	75-12-7	CH3ON	2
Formic acid	64-18-6	CH2O2	ZR
Furfural	98-01-1	C5H4O2	1.4
Furfuryl alcohol	98-00-0	C5H6O2	2
Gasoline vapors	8006-61-9		1.1
Gasoline vapors	8006-61-9		0.8
Gasoline vapors 92 octane	8006-61-9		0.8
Germane	7782-65-2	GeH4	10
Glutaraldehyde	111-30-8	C5H8O2	0.9
Halothane	151-67-7	CF3CHBrCl	ZR
Helium		He	ZR
Heptan-2-one	110-43-0	C7H14O	0.7
Heptan-3-one	106-35-4	C7H14O	0.8
Heptane n-	142-82-5	C7H16	2.1
Hexachloroethane	67-72-1	C2Cl6	ZR
Hexafluoroethane	76-16-4	C2F6	ZR
Hexamethyldisilazane, 1,1,1,3,3,3-.	999-97-3	C6H19NSi2	1
Hexamethyldisiloxane.	107-46-0	C6H18OSi2	0.3
Hexan-2-one	591-78-6	C6H12O	0.8
Hexane n-	110-54-3	C6H14	4.2
Hexene, 1-	592-41-6	C6H12	0.9
Hydrazine	302-01-2	H4N2	3
Hydrazoic acid	7782-79-8	HN3	ZR
Hydrogen	1333-74-0	H2	ZR
Hydrogen bromide	10035-10-6	HBr	ZR
Hydrogen chloride	7647-01-0	HCl	ZR
Hydrogen cyanide	74-90-8	HCN	ZR
Hydrogen fluoride	7664-39-3	HF	ZR
Hydrogen peroxide	7722-84-1	H2O2	4
Hydrogen sulfide	6/4/7783	H2S	4
Hydroquinone	123-31-9	C6H6O2	0.8
Hydroxypropyl acrylate 2-	999-61-1	C6H10O3	1.5
Iminodi(ethylamine) 2,2-	111-40-0	C4H13N3	0.9
Iminodiethanol 2,2'-	111-42-2	C4H11NO2	1.6
Indene	95-13-6	C9H8	0.5
Iodine	7553-56-2	I2	0.2

Gas/ VOC	CAS No.	Formula	Relative Response
Iodoform	75-47-8	CHI3	1.5
Iodomethane	74-88-4	CH3I	0.4
Isoamyl acetate	123-92-2	C7H14O2	1.6
Isobutane	75-28-5	C4H10	8
Isobutanol	78-83-1	C4H10O	3.5
Isobutyl acetate	110-19-0	C6H12O2	2.3
Isobutyl acrylate	106-63-8	C7H12O2	1.3
Isobutylene	115-11-7	C4H8	1
Isobutyraldehyde	78-84-2	C4H8O	1.2
Isocyanates, all			NV
Isodecanol	25339-17-7	C10H22O	0.9
Isoflurane	26675-46-7	C3H2ClF5O	ZR
Isononanol	2452-97-9	C9H20O	1.5
Isooctane	565-75-3	C8H18	1.1
Isooctanol	26952-21-6	C8H18O	1.7
Isopentane	78-78-4	C5H12	6
Isophorone	78-59-1	C9H14O	0.8
Isoprene	78-79-5	C5H8	0.7
Isopropanol	67-63-0	C3H8O	4.4
Isopropyl acetate	108-21-4	C5H10O2	2.2
Isopropyl chloroformate	108-23-6	C4H7O2Cl	1.6
Jet Fuel JP-4			0.8
Jet Fuel JP-5			0.7
Jet Fuel JP-8			0.7
Kerosene	8008-20-6		0.8
Ketene	463-51-4	C2H2O	3
Liquefied petroleum gas	68476-85-7		ZR
Maleic anhydride	108-31-6	C4H2O3	2
Mercaptoacetic acid	68-11-1	C2H4O2S	1
Mercury	7439-97-6	Hg	NV
Mercury alkyls			NV
Mesitylene	108-67-8	C9H12	0.3
Methacrylic acid	79-41-4	C4H6O2	2.3
Methacrylonitrile	126-98-7	C4H5N	5
Methane	74-82-8	CH4	ZR
Methanol	67-56-1	CH4O	200
Methoxyethanol, 2-	109-86-4	C3H8O2	2.7
Methoxyethoxyethanol, 2-	111-77-3	C5H12O3	1.4
Methoxymethylethoxy-2-propanol	34590-94-8	C7H16O3	1.3
Methoxypropan-2-ol	107-98-2	C4H10O2	3
Methoxypropyl acetate	108-65-6	C6H12O3	1.2
Methyl acetate	79-20-9	C3H6O2	5.2
Methyl acrylate	96-33-3	C4H6O2	3.4

Gas/ VOC	CAS No.	Formula	Relative Response
Methyl bromide	74-83-9	CH3Br	1.9
Methyl cyanoacrylate	137-05-3	C5H5O2N	5
Methyl ethyl ketone	78-93-3	C4H8O	0.8
Methyl ethyl ketone peroxides	1338-23-4	C8H18O2	0.8
Methyl formate	107-31-3	C2H4O2	ZR
Methyl isobutyl ketone	108-10-1	C6H12O	0.8
Methyl isocyanate	624-83-9	C2H3NO	ZR
Methyl isothiocyanate	556-61-6	C2H3NS	0.6
Methyl mercaptan	74-93-1	CH4S	0.7
Methyl methacrylate	80-62-6	C5H8O2	1.6
Methyl propyl ketone	107-87-9	C5H10O	0.8
Methyl salicylate	119-36-8	C8H8O3	1.2
Methyl sulphide	75-18-3	C2H6S	0.5
Methyl t-butyl ether	1634-04-4	C5H12O	0.8
Methyl-2-propen-1-ol, 2-	51-42-8	C4H8O	1.1
Methyl-2-pyrrolidinone, N-	872-50-4	C5H9NO	0.9
Methyl-4,6-dinitrophenol, 2-	534-52-1	C7H6N2O5	3
Methyl-5-hepten-2-one, 6-	110-93-0	C8H14O	0.8
Methylamine	74-89-5	CH5N	1.4
Methylbutan-1-ol, 3-	123-51-3	C5H12O	3.4
Methylcyclohexane	108-87-2	C7H14	1.1
Methylcyclohexanol, 4-	589-91-3	C7H14O	2.4
Methylcyclohexanone 2-	583-60-8	C7H12O	1
Methylheptan-3-one, 5-	541-85-5	C8H16O	0.8
Methylhexan-2-one, 5-	110-12-3	C7H14O	0.8
Methylhydrazine	60-34-4	CH6N2	1.3
Methyl-N-2,4, 6-tetranitroaniline, N-	479-45-8	C7H5N5O8	3
Methylpent-3-en-2-one, 4-	141-79-7	C6H10O	0.7
Methylpentan-2-ol, 4-	108-11-2	C6H14O	2.8
Methylpentane-2,4-diol, 2-	107-41-5	C6H14O2	4
Methylpropan-2-ol, 2-	75-65-0	C4H10O	3.5
Methylstyrene	25013-15-4	C9H10	0.5
Mineral oil	8042-47-5		0.8
Mineral spirits	64475-85-0		0.8
Naphthalene	91-20-3	C10H8	0.4
Nitric oxide	10102-43-9	NO	8
Nitroaniline 4-	100-01-6	C6H6N2O2	0.8
Nitrobenzene	98-95-3	C6H5NO2	1.7
Nitroethane	79-24-3	C2H5NO2	ZR
Nitrogen dioxide	10102-44-0	NO2	10
Nitrogen trichloride	10025-85-1	NCl3	1
Nitrogen trifluoride	7783-54-2	NF3	ZR

Gas/ VOC	CAS No.	Formula	Relative Response
Nitromethane	75-52-5	CH3NO2	ZR
Nitropropane, 1-	108-03-2	C3H7NO2	ZR
Nitropropane, 2-	79-46-9	C3H7NO2	ZR
Nitrous oxide	10024-97-2	N2O	ZR
Nonane, n-	111-84-2	C9H20	1.3
Norbornadiene, 2,5-	121-46-0	C7H8	0.6
Octachloronaphthalene	2234-13-1	C10Cl8	1
Octane, n-	111-65-9	C8H18	1.6
Octene, 1-	111-66-0	C8H16	0.7
Oxalic acid	144-62-7	C2H2O4	ZR
Oxalonitrile	460-19-5	C2N2	ZR
Oxydiethanol 2,2-	111-46-6	C4H10O3	4
Oxygen		O2	ZR
Ozone	10028-15-6	O3	ZR
Paraffin wax, fume	8002-74-2		1
Paraffins, normal	64771-72-8		1
Pentacarbonyl iron	13463-40-6	FeC5O5	1
Pentachloroethane	76-01-7	C2HCl5	ZR
Pentachlorofluoroethane	354-56-3	C2Cl5F	ZR
Pentafluoroethane	354-33-6	C2HF5	ZR
Pentan-2-one	107-87-9	C5H10O	0.8
Pentan-3-one	96-22-0	C5H10O	0.8
Pentandione, 2,4-	123-54-6	C5H8O2	0.8
Pentane, n-	109-66-0	C5H12	7.9
Peracetic acid	79-21-0	C2H4O3	2
Perchloryl fluoride	7616-94-6	Cl03F	ZR
Perfluoropropane	76-19-7	C3F8	ZR
Petroleum ether			0.9
Phenol	108-95-2	C6H6O	1.2
Phenyl propene, 2-	98-83-9	C9H10	0.4
Phenyl-2,3-epoxypropyl ether	122-60-1	C9H10O2	0.8
Phenylenediamine, p-	106-50-3	C6H8N2	0.6
Phosgene	75-44-5	COCl2	ZR
Phosphine	7803-51-2	PH3	2
Picoline, 3-	108-99-6	C6H7N	0.9
Pinene, alpha	80-56-8	C10H16	0.3
Pinene, beta	127-91-3	C10H16	0.3
Piperidine	110-89-4	C5H11N	0.9
Piperylene	504-60-9	C5H8	0.7
Prop-2-yn-1-ol	107-19-7	C3H4O	1.3
Propan-1-ol	71-23-8	C3H8O	4.8
Propane	74-98-6	C3H8	ZR

Gas/ VOC	CAS No.	Formula	Relative Response
Propane-1,2-diol, total	57-55-6	C3H8O2	10
Propene	115-07-1	C3H6	1.4
Propionaldehyde	123-38-6	C3H6O	1.7
Propionic acid	79-09-4	C3H6O2	8
Propyl acetate, n-	109-60-4	C5H10O2	2.5
Propylene dinitrate	6423-43-4	C3H6N2O6	ZR
Propylene oxide	75-56-9	C3H6O	7
Propyleneimine	75-55-8	C3H7N	1.3
Pyridine	110-86-1	C5H5N	0.8
Pyridylamine 2-	504-29-0	C5H6N2	0.8
Silane	7803-62-5	SiH4	ZR
Sodium fluoroacetate	62-74-8	C2H2O2FNa	ZR
Styrene	100-42-5	C8H8	0.4
Sulphur dioxide	9/5/7446	SO2	ZR
Sulphur hexafluoride	2551-62-4	SF6	ZR
Sulphur tetrafluoride	7783-60-0	SF4	ZR
Sulphuric acid	7664-93-9	H2SO4	ZR
Sulphuryl fluoride	2699-79-8	SO2F2	ZR
Terphenyls		C18H14	0.6
Terpinolene	586-62-9	C10H16	0.5
Tert-butanol	75-65-0	C4H10O	2.6
Tetrabromoethane, 1,1,2,2-	79-27-6	C2H2Br4	2
Tetracarbonylnickel	13463-39-3	NiC4O4	1
Tetrachloro-1,2-difluoroethane, 1,1,2,2-	76-12-0	C2Cl4F2	ZR
Tetrachloro-1-fluoroethane, 1,1,2,2-	354-14-3	C2HCl4F	ZR
Tetrachloro-2,2-difluoroethane, 1,1,1,2-	76-11-9	C2Cl4F2	ZR
Tetrachloro-2-fluoroethane, 1,1,1,2-	354-11-0	C2HCl4F	ZR
Tetrachloroethane, 1,1,1,2-	630-20-6	C2H2Cl4	ZR
Tetrachloroethane, 1,1,2,2-	79-34-5	C2H2Cl4	ZR
Tetrachloroethylene	127-18-4	C2Cl4	0.7
Tetrachloronaphthalenes, all isomers	20020-02-4	C10H4Cl4	1
Tetraethyl orthosilicate	78-10-4	C8H20O4Si	2
Tetraethyllead	78-00-2	C8H20Pb	ZR
Tetrafluoroethane, 1,1,1,2-	811-97-2	C2H2F4	ZR
Tetrafluoroethane, 1,1,2,2-	359-35-3	C2H2F4	ZR
Tetrafluoroethylene	116-14-3	C2F4	1
Tetrafluoromethane	75-73-0	CF4	ZR
Tetrahydrofuran	109-99-9	C4H8O	1.6
Tetramethyl orthosilicate	681-84-5	C4H12O4Si	ZR
Tetramethyl succinonitrile	3333-52-6	C8H12N2	1
Therminol			1

Gas/ VOC	CAS No.	Formula	Relative Response
Thionyl chloride	9/7/7719	SOCl2	ZR
Toluene	108-88-3	C7H8	0.5
Toluene-2,4-diisocyanate	584-84-9	C9H6N2O2	1.6
Toluenesulphonyl chloride, p-	98-59-9	C7H7SO2Cl	3
Toluidine, o-	95-53-4	C7H9N	0.5
Tributyl phosphate	126-73-8	C12H27O4P	5
Tributylamine	102-82-9	C12H27N	1
Trichloro-1,1-difluoroethane, 1,2,2-	354-21-2	C2HCl3F2	ZR
Trichloro-1,2-difluoroethane, 1,1,2-	354-15-4	C2HCl3F2	ZR
Trichloro-2,2-difluoroethane, 1,1,1-	354-12-1	C2HCl3F2	ZR
Trichloro-2-fluoroethane, 1,1,2-	359-28-4	C2H2Cl3F	ZR
Trichlorobenzene 1,2,4-	120-82-1	C6H3Cl3	0.6
Trichloroethane, 1,1,1-	71-55-6	C2H3Cl3	ZR
Trichloroethane, 1,1,2-	79-00-5	C2H3Cl3	ZR
Trichloroethylene	79-01-6	C2HCl3	0.7
Trichlorofluoromethane	75-69-4	CCl3F	ZR
Trichloronitromethane	76-06-2	CCl3NO2	ZR
Trichlorophenoxyacetic acid, 2,4,5-	93-76-5	C8H5O3Cl3	1
Trichloropropane 1,2,3-	96-18-4	C3H5Cl3	ZR
Trichlorotrifluoroethane, 1,1,1-	354-58-5	C2Cl3F3	ZR
Trichlorotrifluoroethane, 1,1,2-	76-13-1	C2Cl3F3	ZR
Triethylamine	121-44-8	C6H15N	0.9
Trifluoroethane, 1,1,1-	420-46-2	C2H3F3	ZR
Trifluoroethane, 1,1,2-	430-66-0	C2H3F3	ZR
Trifluoroethanol, 2,2,2-	75-89-8	C2H3F3O	ZR
Trifluoromethane	75-46-7	CHF3	ZR
Trimethylamine	53-50-3	C3H9N	0.5
Trimethylbenzene mixtures		C9H12	0.3
Trimethylbenzene, 1,3,5-	108-67-8	C9H12	0.3
Trinitrotoluene 2,4,6-	118-96-7	C7H5N3O6	ZR
Turpentine	8006-64-2	C10H16	0.6
TVOC			1
Undecane, n-	1120-21-4	C11H24	0.9
Vinyl acetate	108-05-2	C4H6O2	1.1
Vinyl bromide	593-60-2	C2H3Br	1
Vinyl chloride	75-01-4	C2H3Cl	2.1
Vinyl-2-pyrrolidinone, 1-	88-12-0	C6H9NO	0.9
Xylene mixed isomers	1330-20-7	C8H10	0.4
Xylene, m-	108-38-3	C8H10	0.4
Xylene, o-	95-47-6	C8H10	0.6
Xylene, p-	106-42-3	C8H10	0.6

Gas/ VOC	CAS No.	Formula	Relative Response
Xylidine, all	1300-73-8	C8H11N	0.7

Chapter 9: Set Window (Program Appearance)

The program's font and graph colors can be changed using the Set window.

1. Launch the Eagle 2 Data Logger Management Program.
2. Click **Set**.

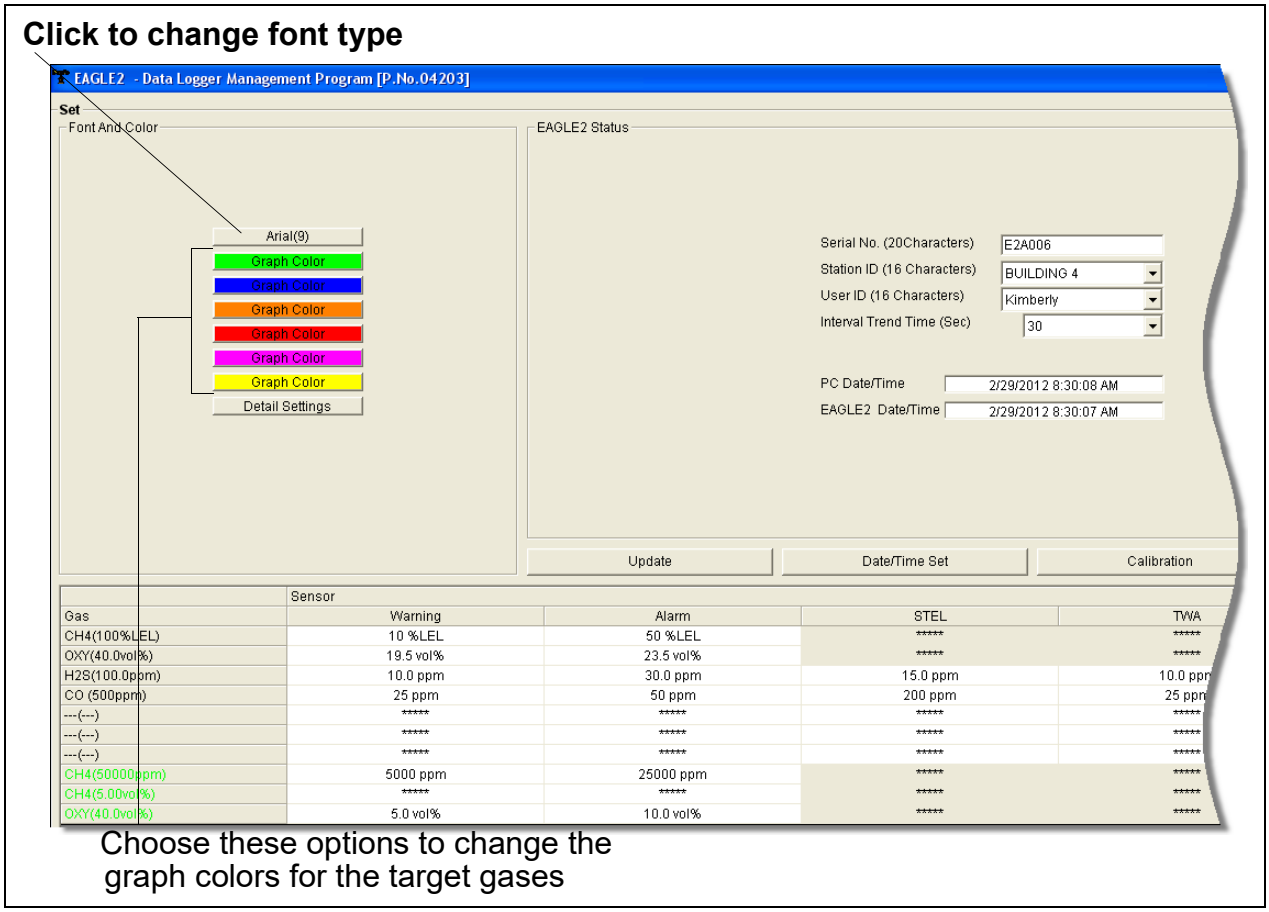

Figure 76: Set Window, Changing Fonts and Graph Colors

3. Specify new fonts by clicking the button with the name of a font inscribed on it. Choose the font type, style, size, and script, then click **OK**.

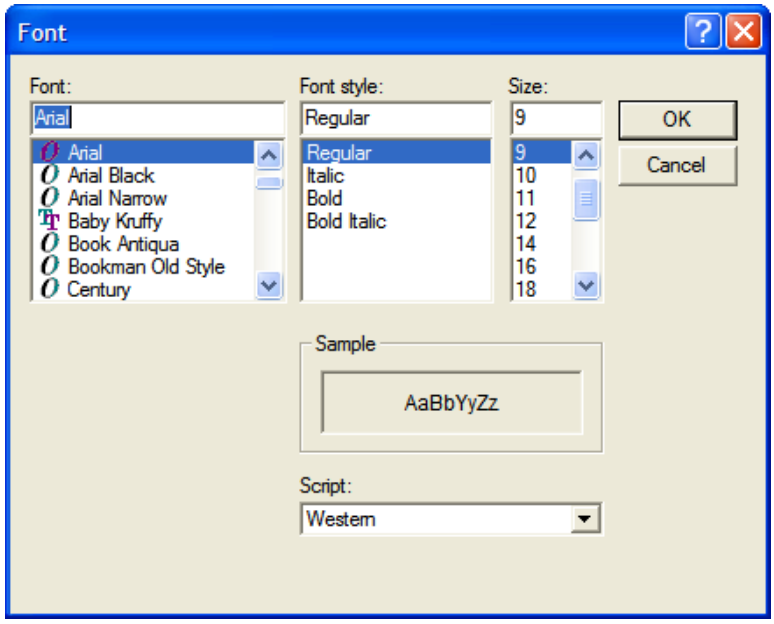

Figure 77: Font Window

4. Select the colors used to graph the various target gases in the interval trend and alarm trend data files by clicking the appropriate **Graph Color** button on the left side of the Set Window. The six Graph Color buttons correspond to the 6 possible Eagle 2 channels. From top to bottom, they correspond to channels 1-6.

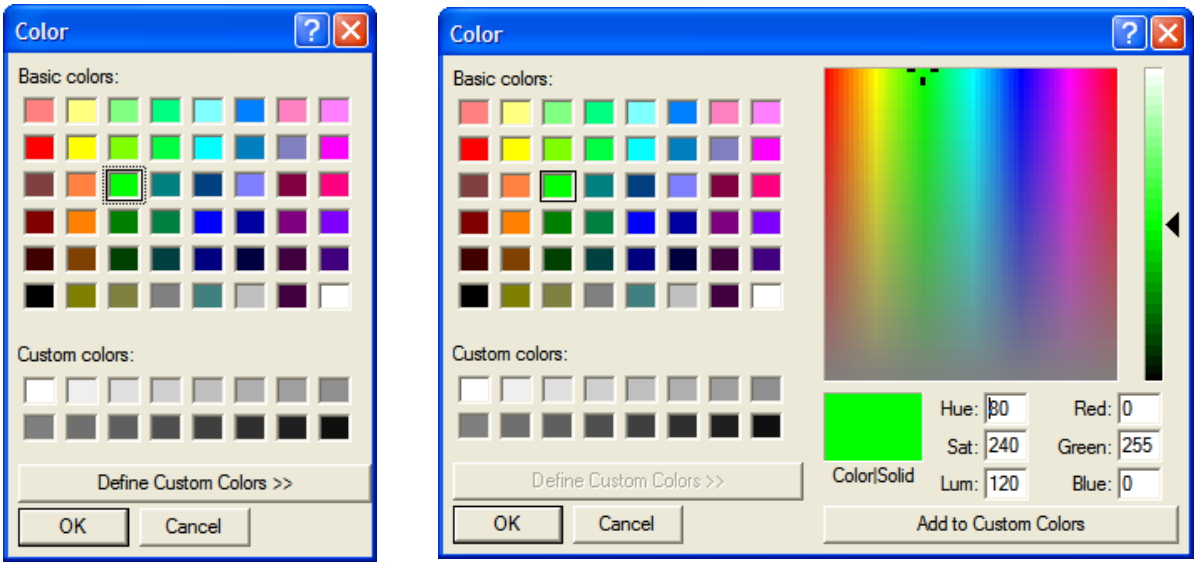

Figure 78: Color and Custom Color Windows

- The Color Window shown on the left above appears when the **Graph Color** button is clicked.
- If you want to define a custom color, click the **Define Custom Colors** button and the Custom Color Window shown on the right above replaces the Color Window.

5. After making the desired changes, click **OK**.
6. The changes you have made will take effect after you exit and restart the program.

Chapter 10: Spare Parts List

Table 6: Spare Parts List

Part Number	Description
47-5084RK	USB/IrDA adapter module, Legasic, for use with all premier portables (without USB cable)
47-5084RK-01	USB/IrDA adapter assembly, Legasic, for use with all premier portables (with module and USB cable)
47-5085RK	Cable, USB A to USB mini, 6 feet, for USB/IrDA adapter module
71-0170RK	Eagle 2 Data Logger Management Program Operator's Manual (this document)
71-8003RK	Eagle 2 Product CD, Includes the Eagle 2 Data Logger Management Program, the Eagle 2 Maintenance Program, and Operator's Manuals for each