Eagle 2 Data Logger Management Program Operator's Manual

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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.

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

Introduction

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® 2000, Windows® XP, Windows® Vista, or Windows® 7.

* **Processor:** IBM® compatible PC running Pentium® 2 or higher.

* **Memory:** 32 MB RAM minimum

* **Available Hard Disk Space:** 32 MB minimum

* **CD-ROM Drive**

* **Infrared port** or

    USB port and a USB/IrDA adapter cable

Installing the Eagle 2 Data Logger Management Program

1. Launch Windows®.

2. Exit from all applications and open windows.

3. There are two ways to install the Eagle 2 Data Logger Management Program: by using the Eagle 2 Product CD or by using the Eagle 2 Data Logger Management Program Installation CD.

    • If you are using the Eagle 2 Product CD, insert the Product CD in your computer's CD-ROM drive. The CD will automatically open revealing several folders. Open the Data Downloading Program folder, double click on **setup.exe**, then continue with step 4.

    • If you are using the Eagle 2 Data Logger Management Program Installation CD, it will automatically begin the installation process. Insert it in your computer's CD-ROM drive, then continue with step 4.

4. 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.
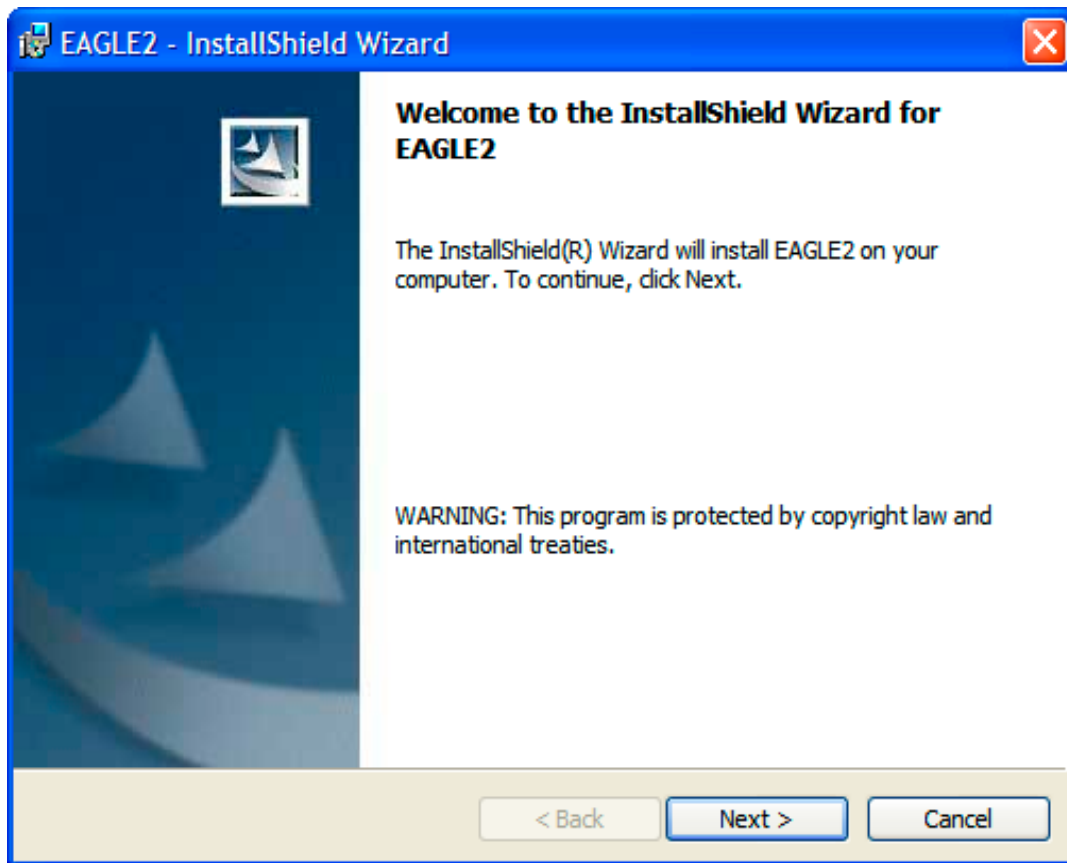
Figure 1: Eagle 2 Data Management Installation Program

5. Follow the on-screen instructions in the Installation Wizard Window to install the program.

6. If the InstallShield Wizard finds versions of Windows® files on your computer newer than those in the product CD or installation CD, it will ask you if you want to keep these newer files. Click **Yes**.

7. When the InstallShield Wizard indicates that installation is complete, click the **Finish** button.

8. Eject the CD from the CD-ROM drive and store it in a safe place.

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. This cable can also be found on many electronic supply websites.

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® Wireless Link 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 Wireless Link 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. 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. Double click on **Wireless Link**. The Wireless Link Configuration Window will appear.

4. Click on the Image Transfer tab.

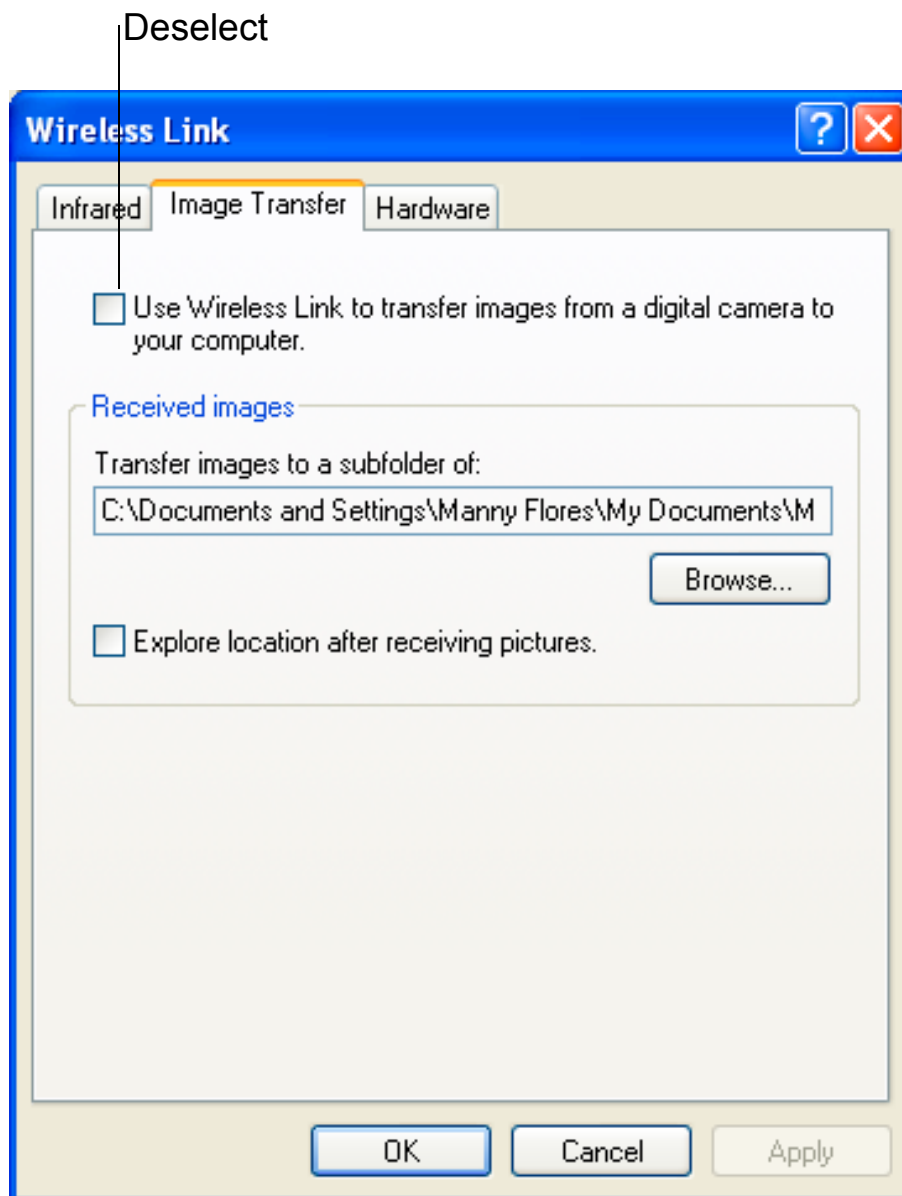5. Deselect the selection box for "Use Wireless Link to transfer images from a digital camera to your computer."

Deselect

Wireless Link

Infrared | Image Transfer | Hardware

☐ Use Wireless Link to transfer images from a digital camera to your computer.

Received images

Transfer images to a subfolder of:

C:\Documents and Settings\Manny Flores\My Documents\M

Browse...

☐ Explore location after receiving pictures.

OK   Cancel   Apply

Figure 2: Image Transfer Tab

6. Click **OK**.

7. Close the Control Panel window.

Launching the Program

1. Click **Start** on the Windows® Icon Tray, then select **All Programs**, then select **Eagle 2**. Your operating system may also have a shortcut installed in the **Start** menu.

2. The program will launch and the Download Window will appear.
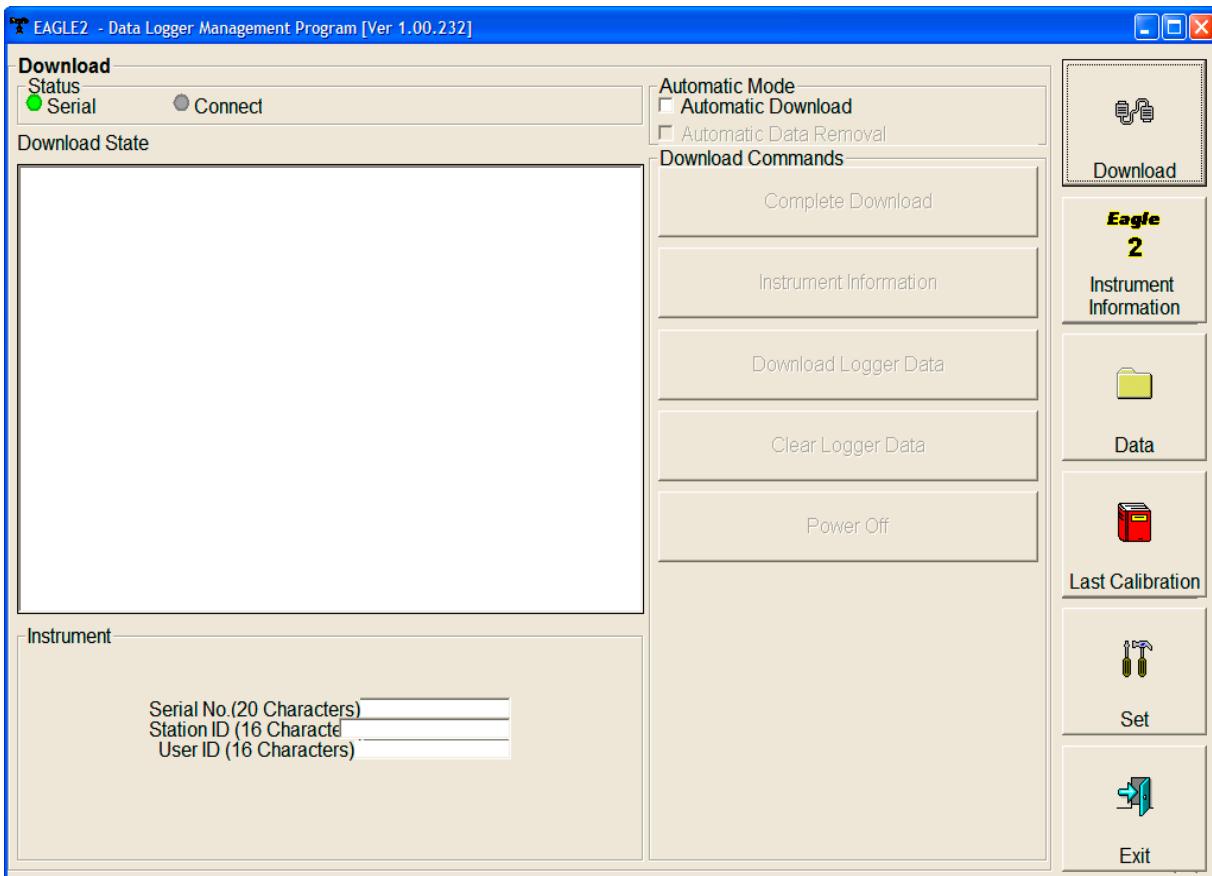
Figure 3: The Download Window

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.

Control Buttons

This section provides an overview of the control buttons. Instructions for using the various parts of the program accessed by the control buttons are given in other parts of this manual.

When the program is launched, it opens in the Download Window. Along the right side of the Download Window are six control buttons that access other windows in the program.The figure below shows the various windows that you can access when you click the control buttons.
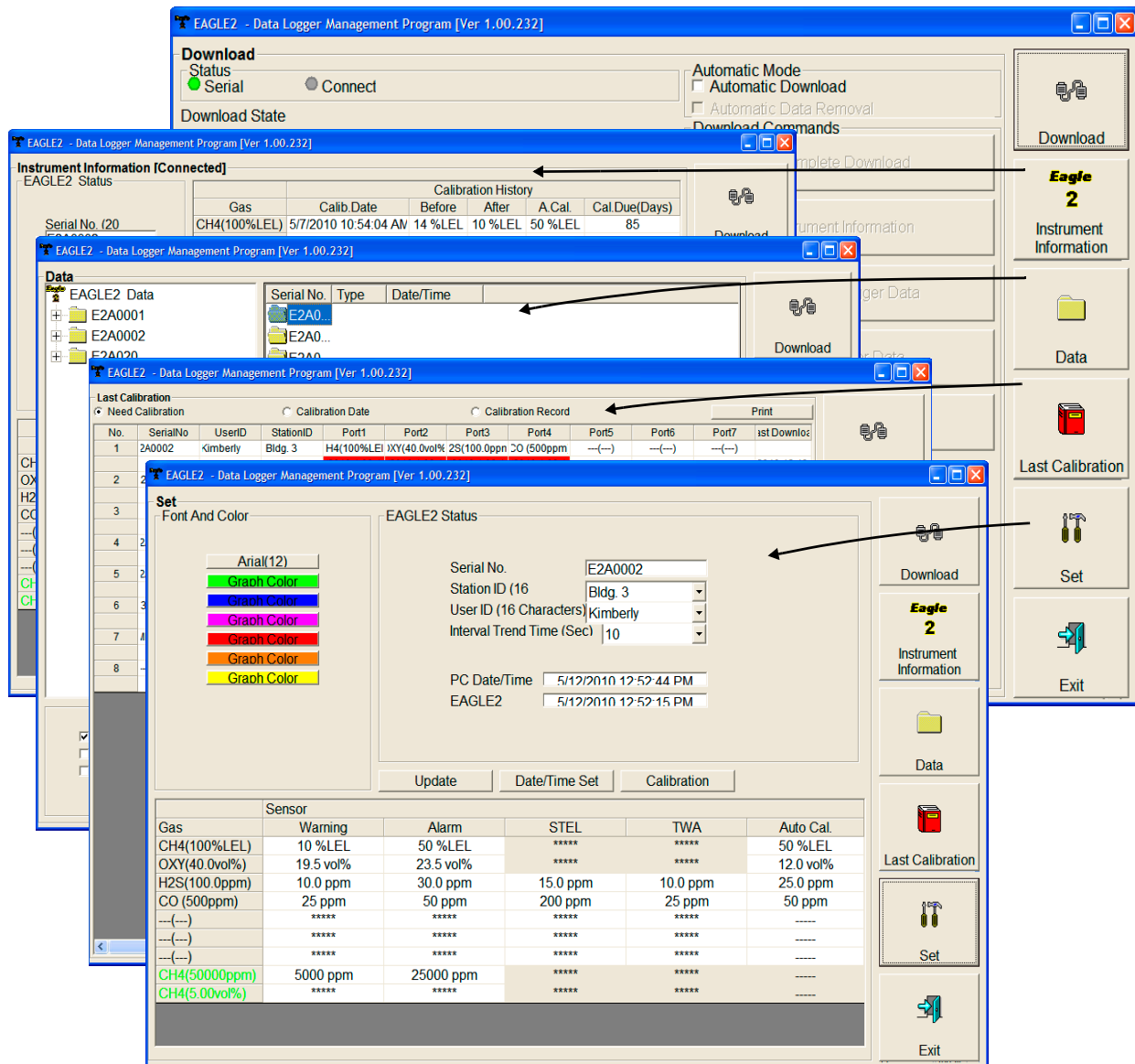
Figure 4: Windows Accessed by Control Buttons

Download Button

If you are in another program window, clicking the **Download** button opens the Download Window (see Figure 3). The Download window has several download commands that allow you to perform various data retrieval functions with an instrument that is connected to the program. Data can be retrieved from the instrument, data can be cleared from the instrument, and the instrument can be turned off. See "Downloading Data from the Eagle 2" on page 15 for a complete description of downloading data from an Eagle 2.

Instrument Information Button

Clicking the **Instrument Information** button opens the Instrument Information Window.

Figure 5: Instrument Information Window

The Instrument Information Window displays various instrument parameters for an instrument that has been downloaded using the **Complete Download** or **Instrument Information** download

commands and is currently connected to the program. If an instrument is turned off after being connected to the program, then the program will lose the connection with the instrument and the fields in the Instrument Information Window will become empty.

Data Button

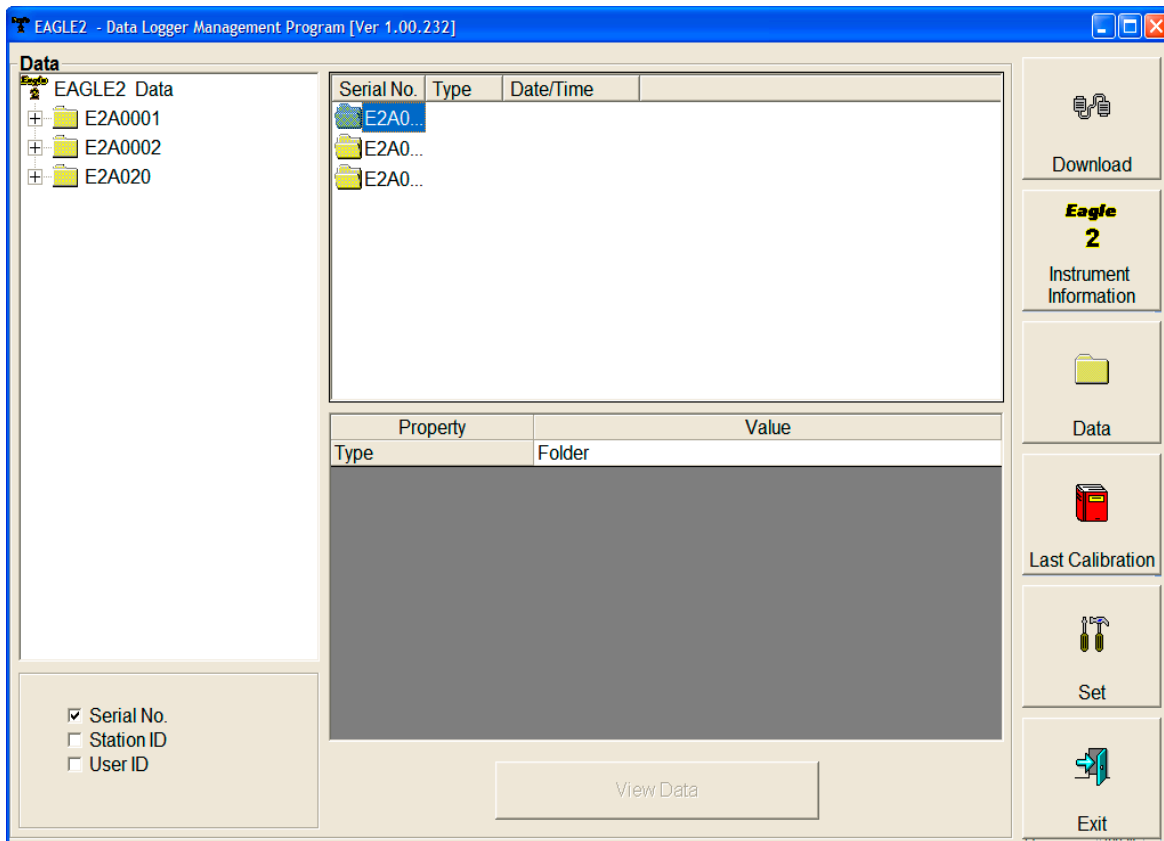Clicking the **Data** button opens the Data Window.

Figure 6: Data Window

In the Data Window, you can view, print, export, and delete data that has been downloaded from instruments. The following types of data files are saved in the Data window:

- Calibration History Files

  A calibration history file is saved for each instrument that has been downloaded. It records the calibration information for every calibration that was downloaded. The Eagle 2 can save information for up to 100 calibrations in its memory.

- Interval Trend Data Files

  Interval trend data is logged at the interval time defined in the Eagle 2. Each logged point is an average reading over the previous time interval.

- Alarm Trend Data Files

  Alarm trend data is logged around an alarm event. The Eagle 2 can save up to 8 alarm trend data files in its memory.

- Alarm Event Files

  Alarm event files record gas alarm events that have been downloaded from instruments. The Eagle 2 can save up to 100 alarm events in its memory.

- Trouble Event Files

  Trouble event files record sensor failure and system failure events that have been downloaded from instruments. The Eagle 2 can save up to 100 trouble events in its memory.

Last Calibration Button

Clicking the **Last Calibration** button opens the Last Calibration Window.

Figure 7: Last Calibration Window

The Last Calibration Window stores the information for the most recent successful calibration for each Eagle 2 that has been downloaded. You can display the information three ways by using the Need Calibration, Calibration Date, or Calibration Record selection buttons. You can also print the information if you select the Need Calibration or Calibration Date display options.

Set Button

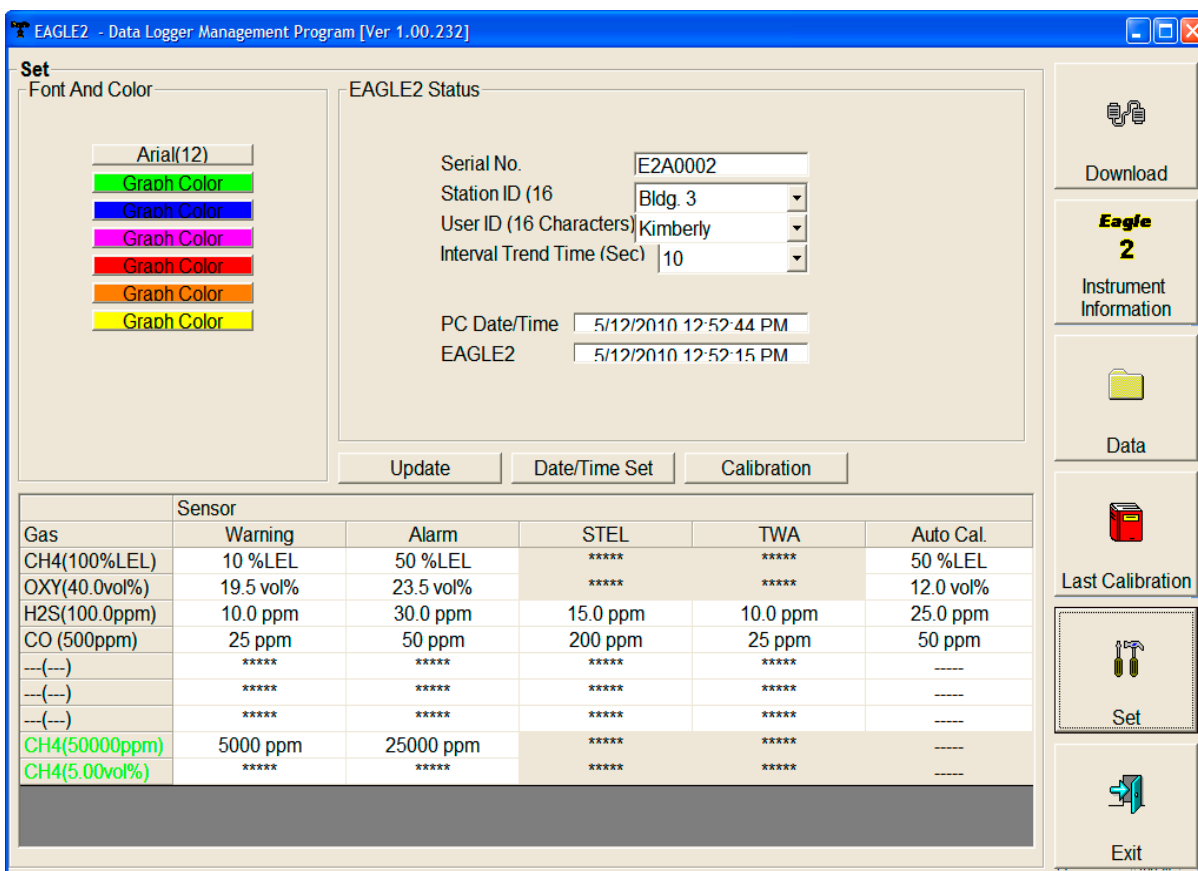Clicking the **Set** button opens the Set Window.

Figure 8: Set Window

In the Set Window, you can perform the following functions:

- Alter the appearance of the software windows with the Font and Color buttons

- Change parameters of a connected instrument by editing the fields in the Eagle 2 Status frame and in the Gas/Sensor frame at the bottom of the window and clicking the **Update** button

- Update the date and time in a connected instrument by using the **Date/Time Set** button

- Calibrate a connected instrument by using the **Calibration** button.

Downloading Data from the Eagle 2

You have the option of downloading data manually or automatically. If you want to download data using the automatic download feature, click the Automatic Download selection box in the Download Window before attempting to download data from the Eagle 2. Remember that if Automatic Download is selected, the Instrument Information Window will remain blank and the Eagle 2 will turn off automatically after the data has been downloaded. If you want the data in the Eagle 2 to be cleared automatically 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.
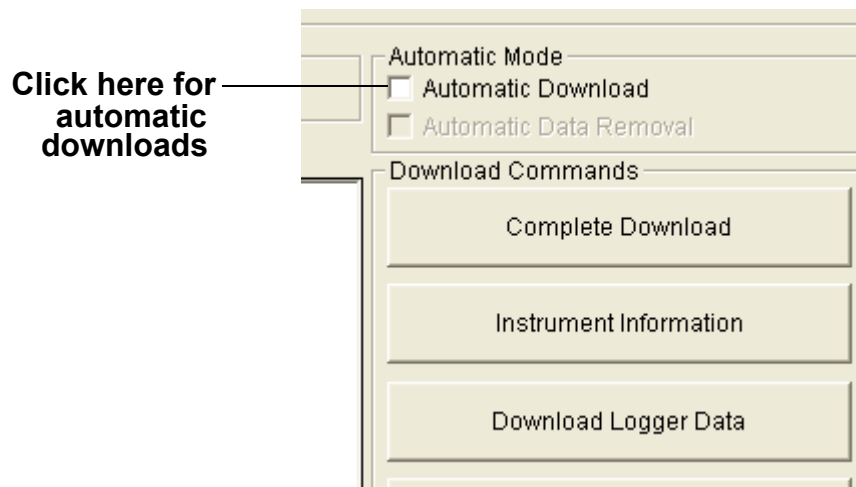
Click here for automatic downloads ———

Figure 9: Automatic Download Selection Box

To download data from an Eagle 2:

1. Launch the Eagle 2 Data Logger Management Program. The Download Window displays. When the program comes up and no instrument is connected, the Download Commands are not selectable.

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 10 below, aligning the infrared port on the front of the Eagle 2 with the infrared port on the cable.
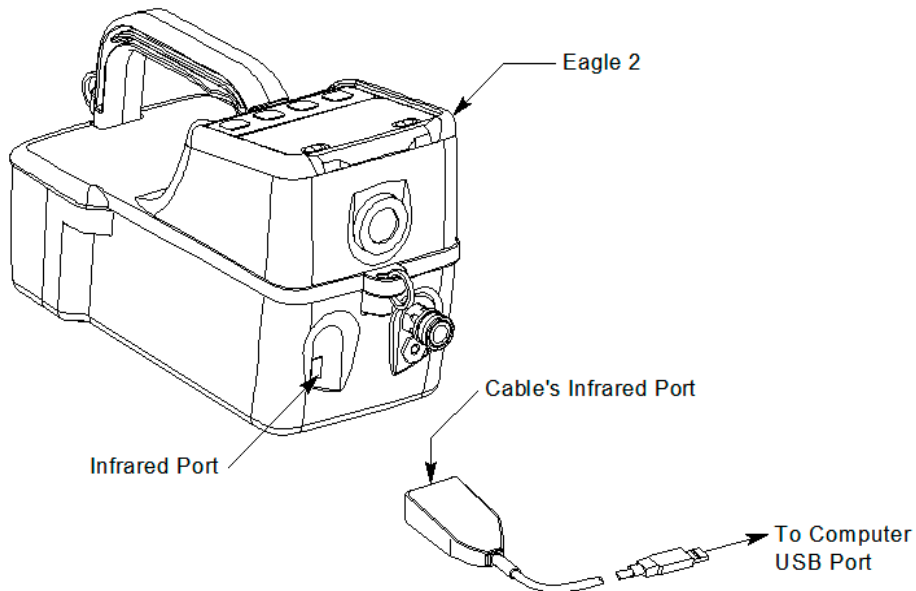

Figure 10: Aligning the Eagle 2 with the Cable Infrared Receiver

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 it's 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

Figure 11: Connection Message

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.

4. If you selected Automatic Download, the downloading process begins automatically after a successful connection is made.
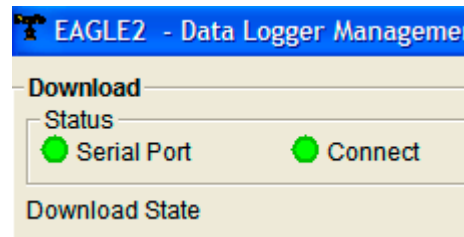
If Automatic Download is not selected, the Complete Download, Instrument Information, Clear Logger Data, and

Power Off Download Commands become selectable.

5. If you are going to download data manually, you can perform a complete download, download only the instrument information, or download only the data files by using the Download Commands.

Figure 12: Download Commands
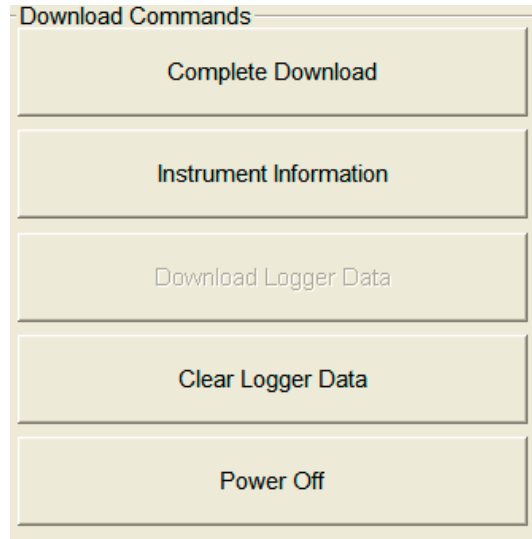
- To download all data and instrument information from the instrument, click **Complete Download**.

- To download instrument information only, click **Instrument Information.**

- To download all data, click **Download Logger Data. Download Logger Data** becomes selectable only after a Complete Download or Instrument Information Download Command has been performed.

6. 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.
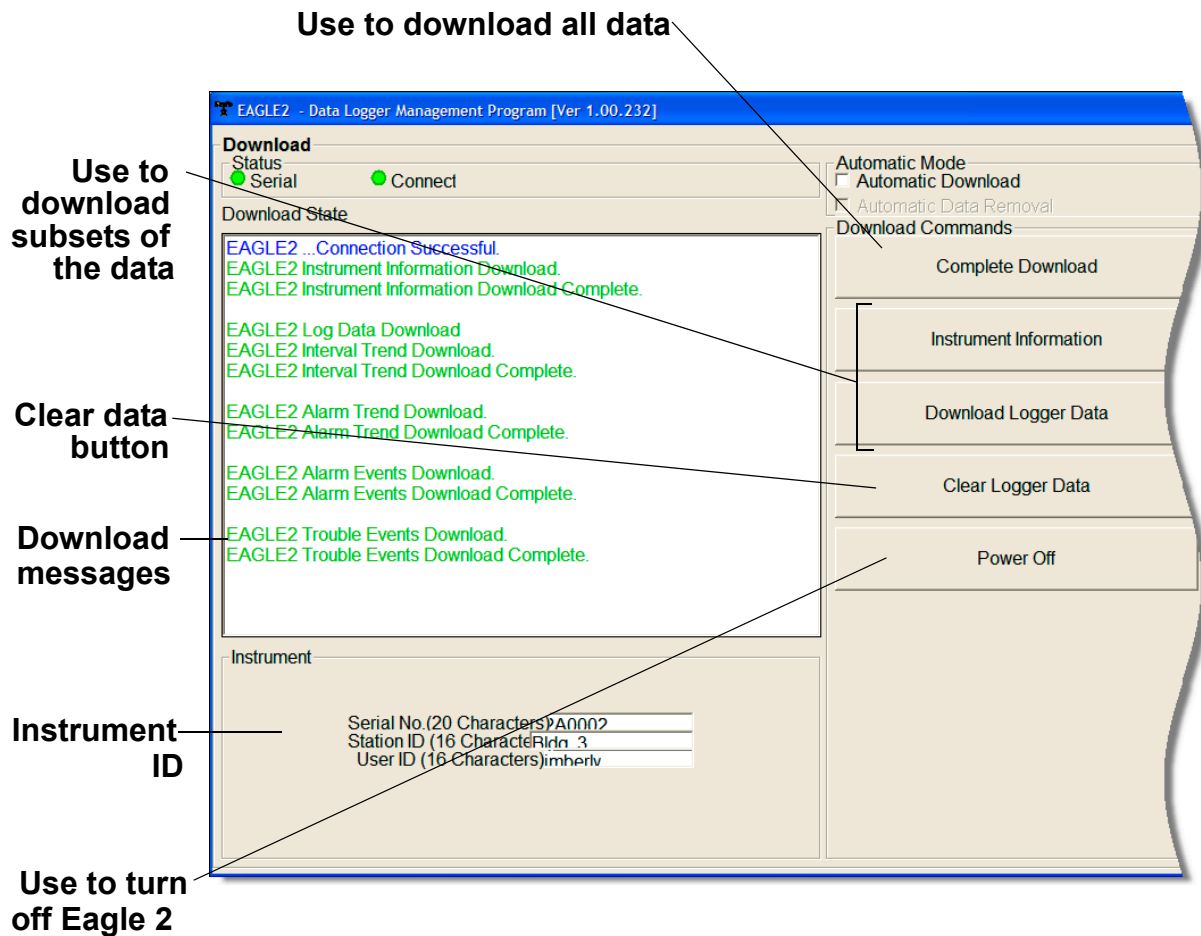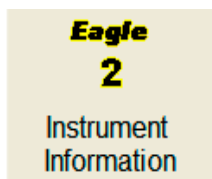
Use to download all data

Use to download subsets of the data

Clear data button

Download messages

Instrument ID

Use to turn off Eagle 2

EAGLE2 - Data Logger Management Program [Ver 1.00.232]

Download
Status
● Serial   ● Connect

Download State

EAGLE2 ...Connection Successful.
EAGLE2 Instrument Information Download.
EAGLE2 Instrument Information Download Complete.

EAGLE2 Log Data Download
EAGLE2 Interval Trend Download.
EAGLE2 Interval Trend Download Complete.

EAGLE2 Alarm Trend Download.
EAGLE2 Alarm Trend Download Complete.

EAGLE2 Alarm Events Download.
EAGLE2 Alarm Events Download Complete.

EAGLE2 Trouble Events Download.
EAGLE2 Trouble Events Download Complete.

Instrument

Serial No.(20 Characters)PA0002
Station ID (16 Characters)Bldg_3
User ID (16 Characters)imberly

Automatic Mode
☐ Automatic Download
☐ Automatic Data Removal

Download Commands

Complete Download

Instrument Information

Download Logger Data

Clear Logger Data

Power Off

Figure 13: Download Messages & Download Commands

Eagle 2 Instrument Information

7. If the unit has been downloaded manually (Automatic Download not selected), the unit's instrument information may be viewed after downloading by using the **Instrument Information** control button if the unit is still turned on and connected to the computer. The instrument information includes instrument parameters such as serial number and alarm points, and also includes the results of the most recent successful calibration for each channel. To view instrument information for a unit, click **Instrument Information** along the right side of the Download Window. The Instrument Information Window displays. This screen cannot be printed from the downloading program. If the unit is turned off, the Instrument Information window will be blank.

EAGLE2 - Data Logger Management Program [Ver 1.00.232]

Instrument Information [Connected]

EAGLE2 Status

Serial No. (20
F2A0002
Station ID (16
Bldg 3
User ID (16 Characters)
Kimberly

	Calibration History				
Gas	Calib.Date	Before	After	A.Cal.	Cal.Due(Days)
CH4(100%LEL)	5/7/2010 10:54:04 AM	14 %LEL	10 %LEL	50 %LEL	85
OXY(40.0vol%)	5/4/2010 1:03:50 PM	12.0 vol%	12.0 vol%	12.0 vol%	82
H2S(100.0ppm)	5/4/2010 1:03:50 PM	25.5 ppm	25.0 ppm	25.0 ppm	82
CO (500ppm)	5/4/2010 1:03:50 PM	50 ppm	50 ppm	50 ppm	82
---(---)	-----	-----	-----	-----	-----
---(---)	-----	-----	-----	-----	-----
---(---)	-----	-----	-----	-----	-----

	Warning and Alarm point			
Gas	Warning	Alarm	STEL	TWA
CH4(100%LEL)	10 %LEL	50 %LEL	*****	*****
OXY(40.0vol%)	19.5 vol%	23.5 vol%	*****	*****
H2S(100.0ppm)	10.0 ppm	30.0 ppm	15.0 ppm	10.0 ppm
CO (500ppm)	25 ppm	50 ppm	200 ppm	25 ppm
---(---)	*****	*****	*****	*****
---(---)	*****	*****	*****	*****
---(---)	*****	*****	*****	*****
CH4(50000ppm)	5000 ppm	25000 ppm	-----	-----
	*****			-----

Figure 14: Instrument Information Window

8. You can view, print, export, or delete downloaded data by entering the Data or Last Calibration Windows. These windows are accessed by clicking **Data** or **Last Calibration** along the right side of the Download Window. See "Viewing, Printing, Exporting, and Deleting Data in the Data Window" on page 21 or "Viewing, Printing, and Deleting Data in the Last Calibration Window" on page 51.

9. 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.**

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 Eagle 2 Instrument Parameters" on page 62). 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.

Viewing, Printing, Exporting, and Deleting Data in the 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 46.

Data Window

All the data, other than the most recent calibration information accessible in the Last Calibration Window, can be accessed in the Data Window. The Data Window is accessed by clicking **Data** along the right side of the program window.
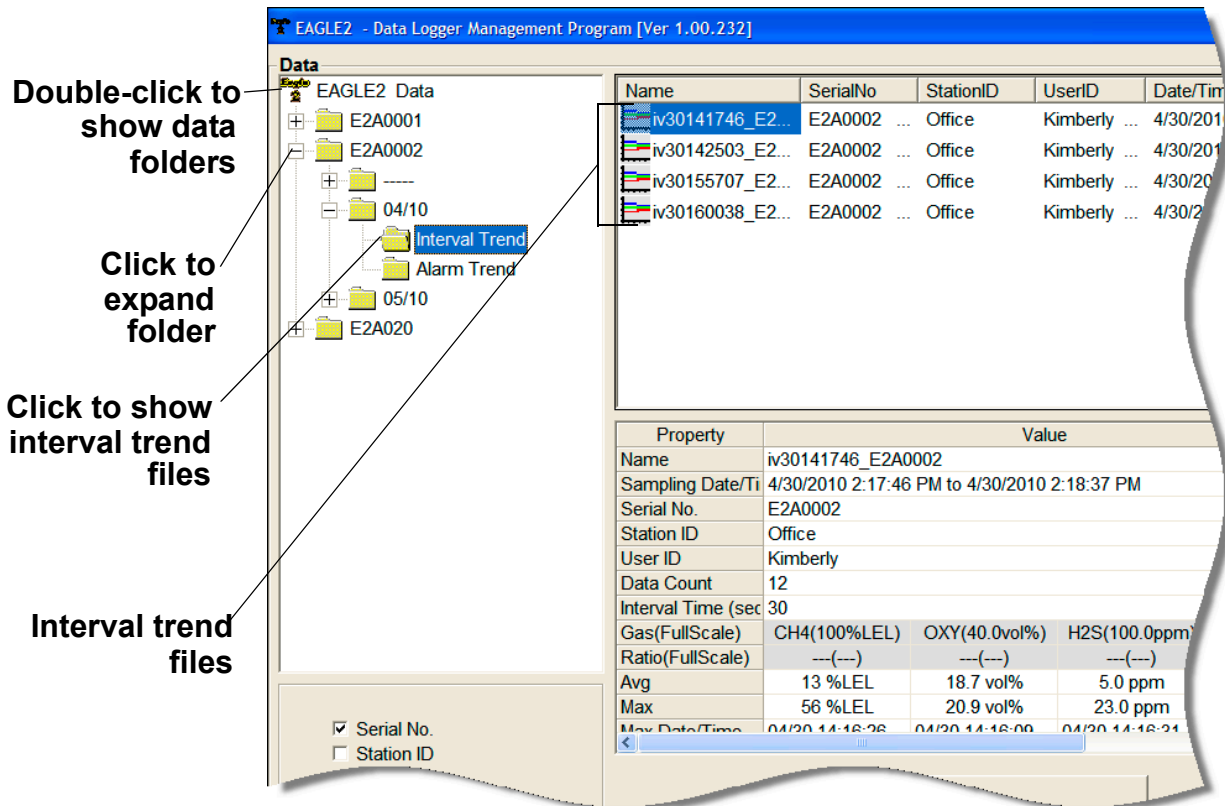
Figure 15: Data Window, Basic Data Organization

The Data Window is divided into four frames. The upper left frame is the Data Frame and displays all the data folders. They are grouped under the Eagle 2 icon in the upper left part of the frame. If the data folders are not visible, double click the Eagle 2 icon to make them visible. If no data has been saved, then no folders will appear when the Eagle 2 icon is double clicked.

The lower left frame contains three selection boxes for organizing data. If none of the boxes are selected, then the data is organized as shown in Figure 15. The data may be organized by one or more of the following parameters: serial number, station ID, or user ID. Click the selection box or boxes in the lower left frame to organize the data as desired.

NOTE: In the examples that follow, the data will be shown organized by serial number. If you do not select any of the organization boxes or select the Station ID or User ID boxes instead of or in addition to the Serial No. box, your Data Window will look 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.

The upper right frame shows the contents of a data folder that is selected in the Data Frame. The lower right frame shows the summary information for a data file that is selected in the upper right frame.

The **View Data** control button is located at the bottom of the lower right frame. The **View Data** button becomes active when a data file is selected in the upper right frame. Clicking **View Data** opens the data file and displays the data.

NOTE: If data is being viewed and the data folders are left open before instrument downloading is done, close all folders after downloading and re-open them to be able to view newly downloaded files.

Calibration History

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 "Viewing, Printing, and Deleting Data in the Last Calibration Window" on page 51 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 16: 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.

Figure 17: 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.
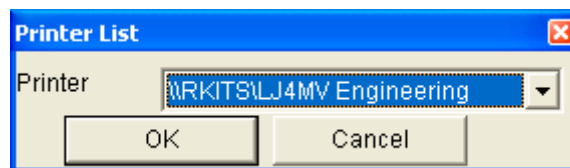
Figure 18: Printer List Dialog Box, Calibration History

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).
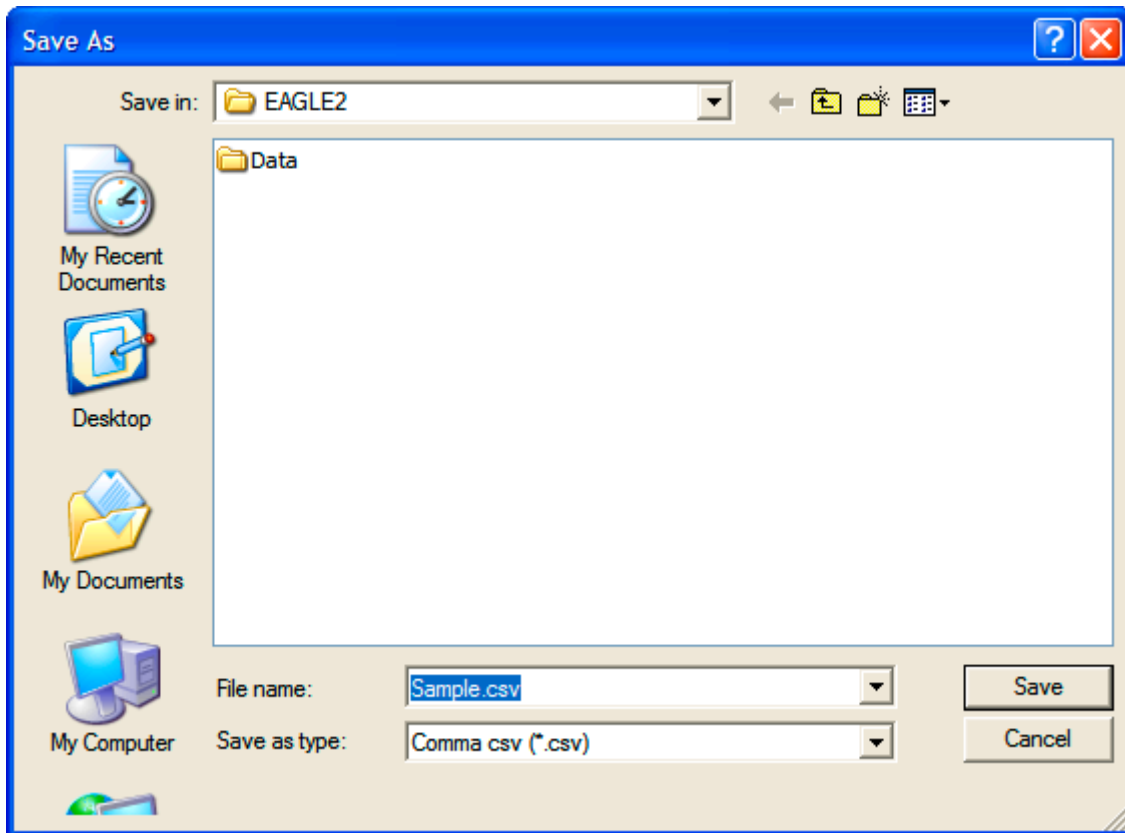
Figure 19: Save as Dialog Box

> 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.
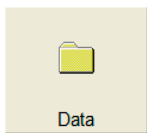
Event Data

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:

Data

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

Double-click to show data folders

Click to expand folder

Click to show alarm event file

Alarm event file

Figure 20: 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 20. 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 20).

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.

Figure 21: Data View - Alarm Events

Figure 22: 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 20. 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.
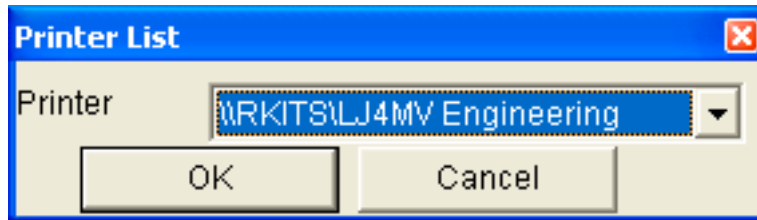

Figure 23: Printer List Dialog Box, Event Data

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).
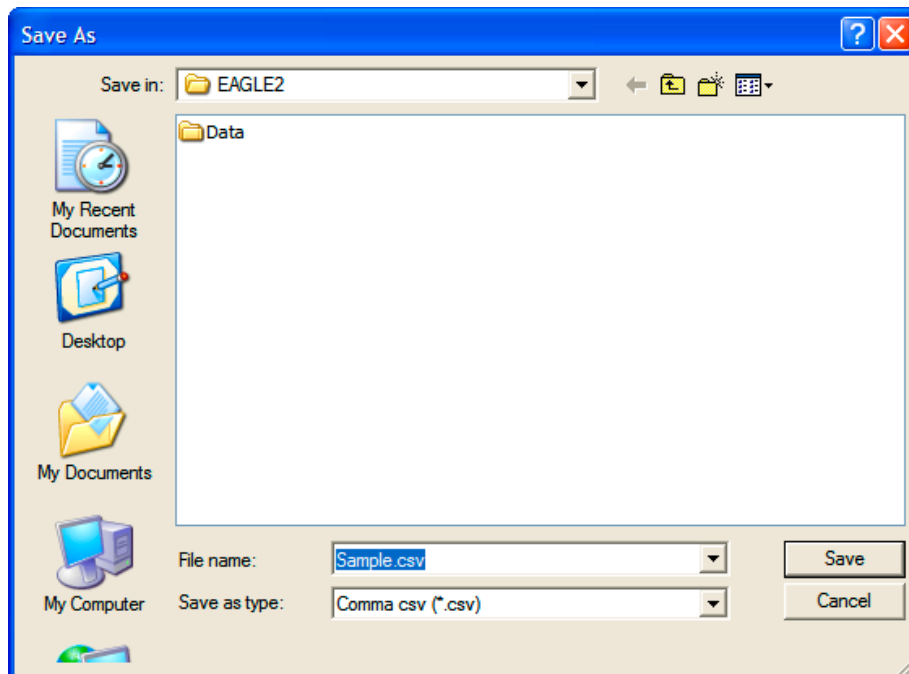

Figure 24: Save as Dialog Box

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 or the Interval Trend Time item in the Set window. See "Changing Eagle 2 Instrument Parameters" on page 62 or the Eagle 2 Operator's Manual for instructions to set the interval trend time. 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 either in table format or graph format if at least 5 scheduled data points have been logged at the programmed interval trend time. This does not include 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
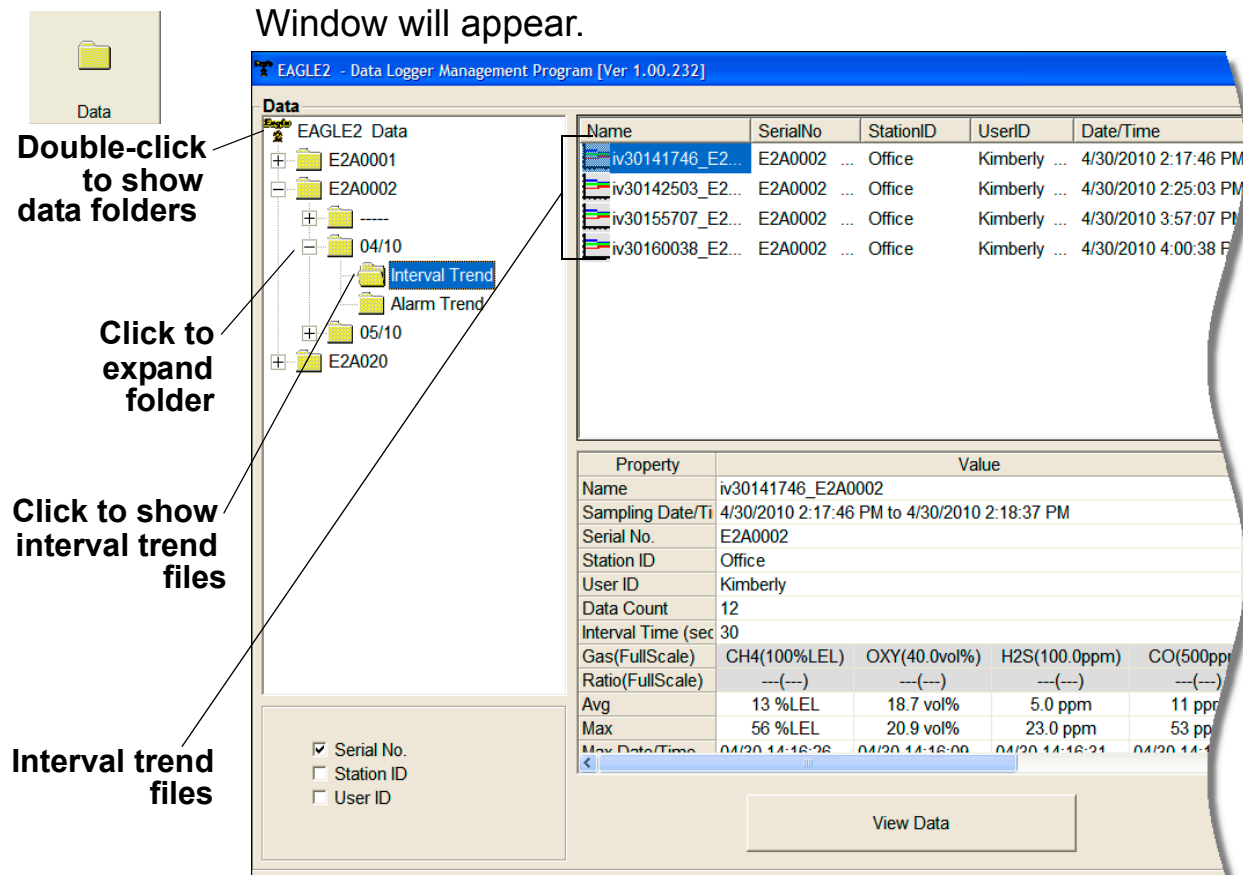
Window will appear.

Data (folder icon label, left margin)

Double-click to show data folders

Click to expand folder

Click to show interval trend files

Interval trend files

Figure 25: 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 26 is shown in table format.
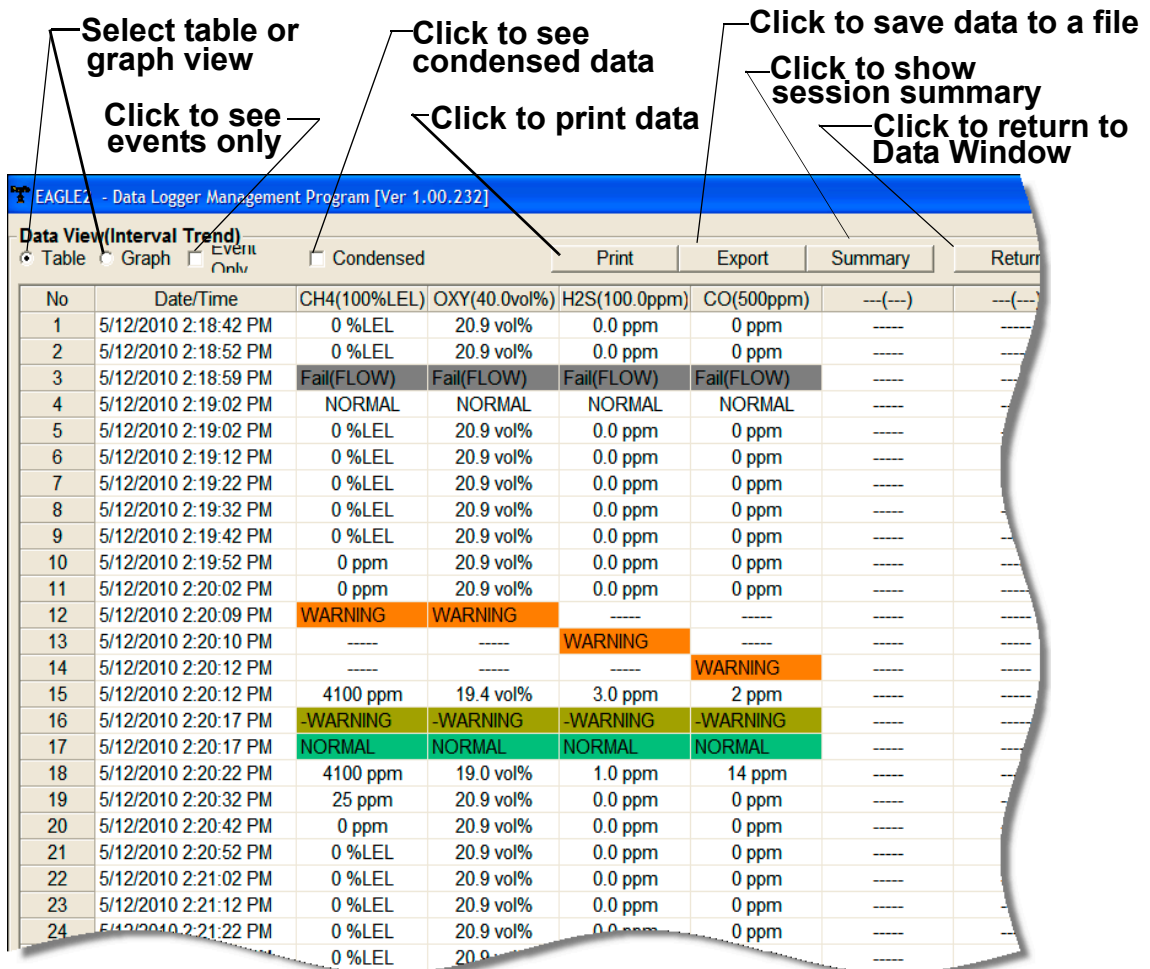

Figure 26: Interval Trend Data in Table Format

- 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 25. 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.

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.

Figure 27: 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.

Click to return to interval trend data

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 28: 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 25 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.
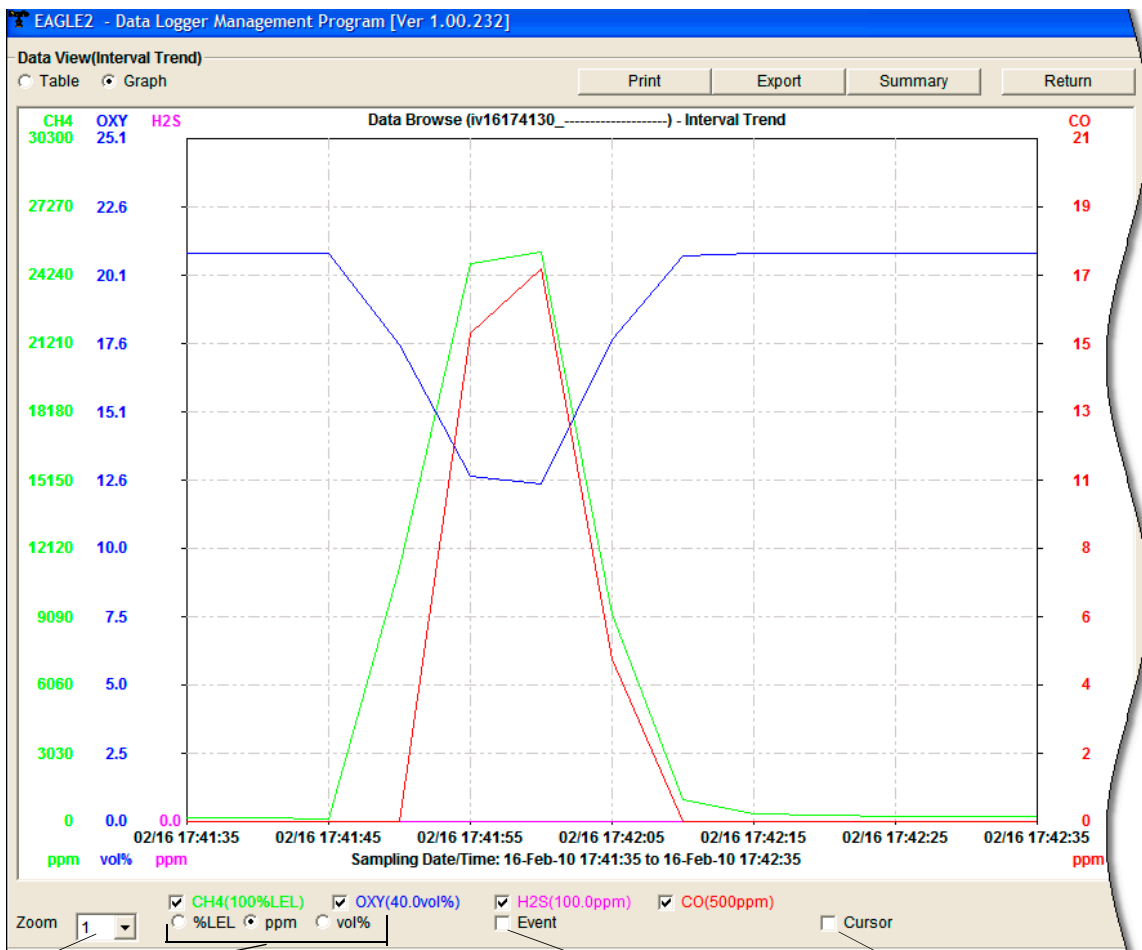
Figure 29: Interval Trend Data in Graph Format

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

- You can choose which gas you want to graph

- 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 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.

- 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 25. 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.
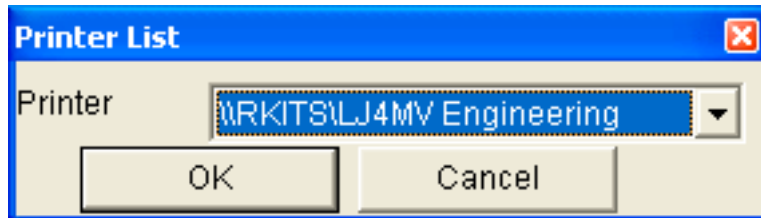

Figure 30: Printer List Dialog Box, Interval Data

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.
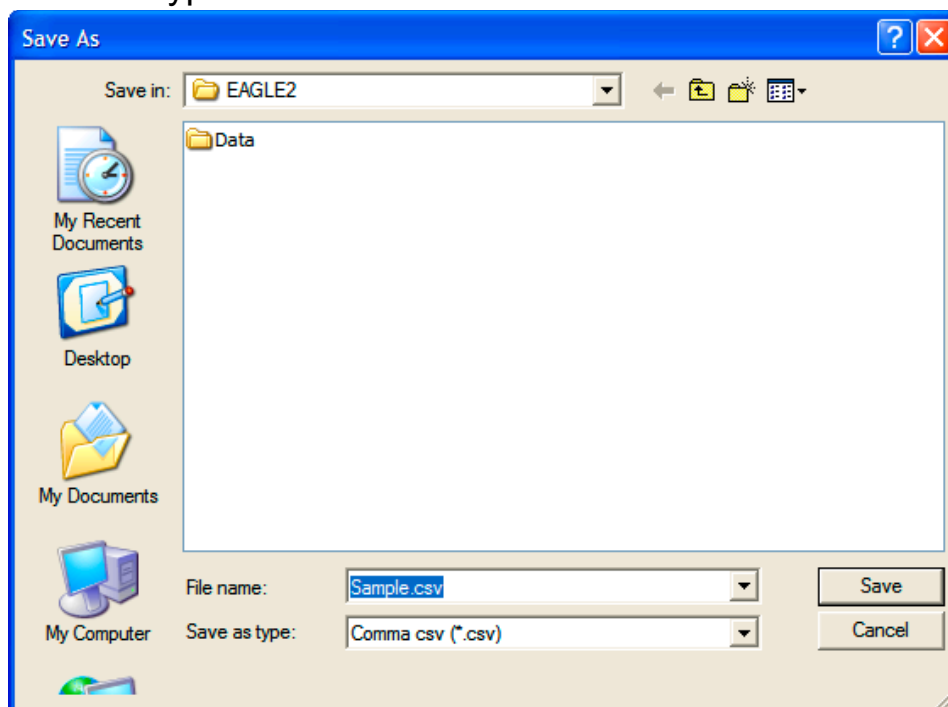
Figure 31: Save as Dialog Box

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.
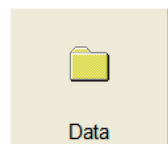
Alarm Trend Data

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 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 32: 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 33 is in table format.

Select table or graph view

Click to print data

Click to save data to a file

Click for a summary of the data

No	Date/Time	CH4(100%LEL)	OXY(40.0vol%)	H2S(100.0ppm)	CO(500ppm)	---(---)	---(---)
354	4/30/2010 1:09:43 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
355	4/30/2010 1:09:48 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
356	4/30/2010 1:09:53 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
357	4/30/2010 1:09:58 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
358	4/30/2010 1:10:03 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
359	4/30/2010 1:10:08 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
360	4/30/2010 1:10:13 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
361	4/30/2010 1:10:18 PM	14 %LEL	19.4 vol%	12.0 ppm	0 ppm	*****	*****
362	4/30/2010 1:10:23 PM	52 %LEL	12.8 vol%	22.0 ppm	37 ppm	*****	*****
363	4/30/2010 1:10:28 PM	54 %LEL	12.2 vol%	24.0 ppm	48 ppm	*****	*****
364	4/30/2010 1:10:33 PM	54 %LEL	12.1 vol%	24.0 ppm	50 ppm	*****	*****
365	4/30/2010 1:10:38 PM	52 %LEL	12.1 vol%	24.5 ppm	50 ppm	*****	*****
366	4/30/2010 1:10:43 PM	52 %LEL	12.1 vol%	25.0 ppm	50 ppm	*****	*****
367	4/30/2010 1:10:48 PM	19 %LEL	17.7 vol%	4.0 ppm	33 ppm	*****	*****
368	4/30/2010 1:10:53 PM	2 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
369	4/30/2010 1:10:58 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
370	4/30/2010 1:11:03 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
371	4/30/2010 1:11:08 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
372	4/30/2010 1:11:13 PM	39 %LEL	14.5 vol%	20.5 ppm	15 ppm	*****	*****
373	4/30/2010 1:11:18 PM	54 %LEL	12.3 vol%	24.0 ppm	46 ppm	*****	*****
374	4/30/2010 1:11:23 PM	54 %LEL	12.1 vol%	24.5 ppm	50 ppm	*****	*****
375	4/30/2010 1:11:28 PM	53 %LEL	12.1 vol%	25.0 ppm	50 ppm	*****	*****
376	4/30/2010 1:11:33 PM	52 %LEL	12.1 vol%	25.0 ppm	50 ppm	*****	*****
377	4/30/2010 1:11:38 PM	52 %LEL	12.1 vol%	25.0 ppm	50 ppm	*****	*****
378	4/30/2010 1:11:43 PM	13 %LEL	18.9 vol%	3.0 ppm	24 ppm	*****	*****
379	4/30/2010 1:11:48 PM	1 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
380	4/30/2010 1:11:53 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
381	4/30/2010 1:11:58 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
382	4/30/2010 1:12:03 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
383	4/30/2010 1:12:08 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****
384	4/30/2010 1:12:13 PM	0 %LEL	20.9 vol%	0.0 ppm	0 ppm	*****	*****

Alarm Event

Figure 33: 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.

- 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 32.

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.
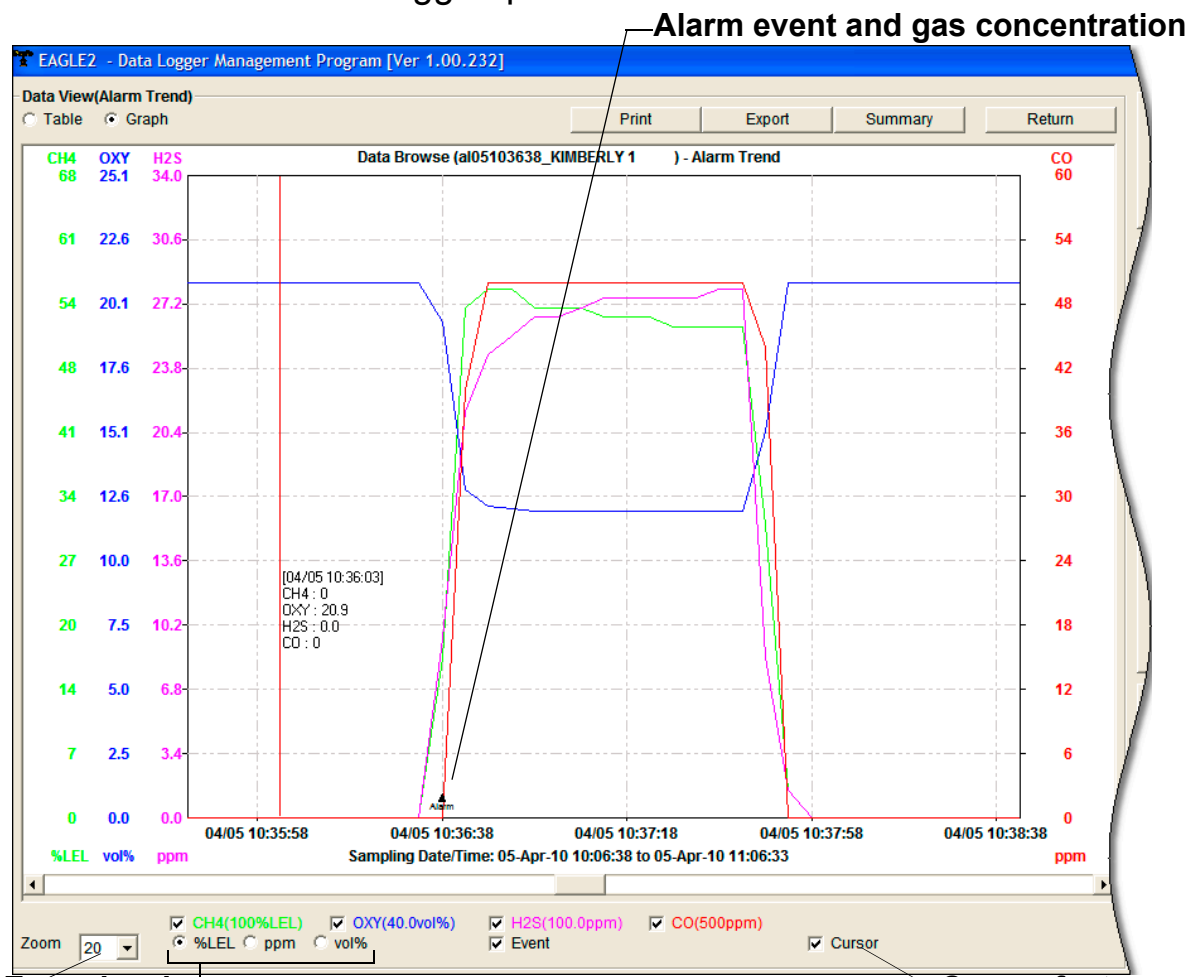
Figure 34: Alarm Trend Data in Graph Format

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

- You can choose which gas you want to graph

- You can choose the reading units for the catalytic combustible channel data.

- 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 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 32. 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.
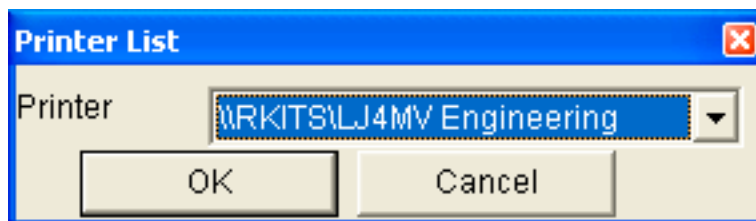
Figure 35: Printer List Dialog Box, Interval Data

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.
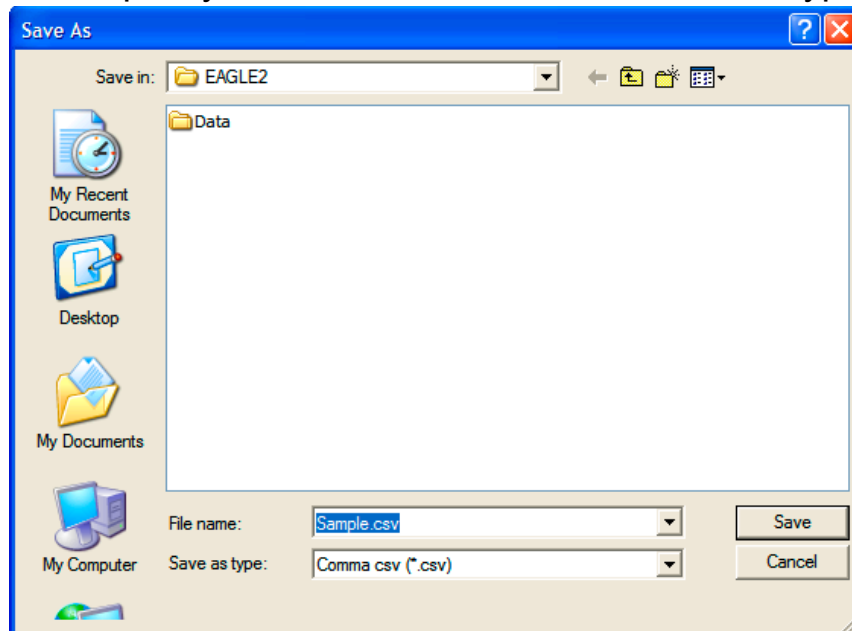

Figure 36: Save as Dialog Box

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.
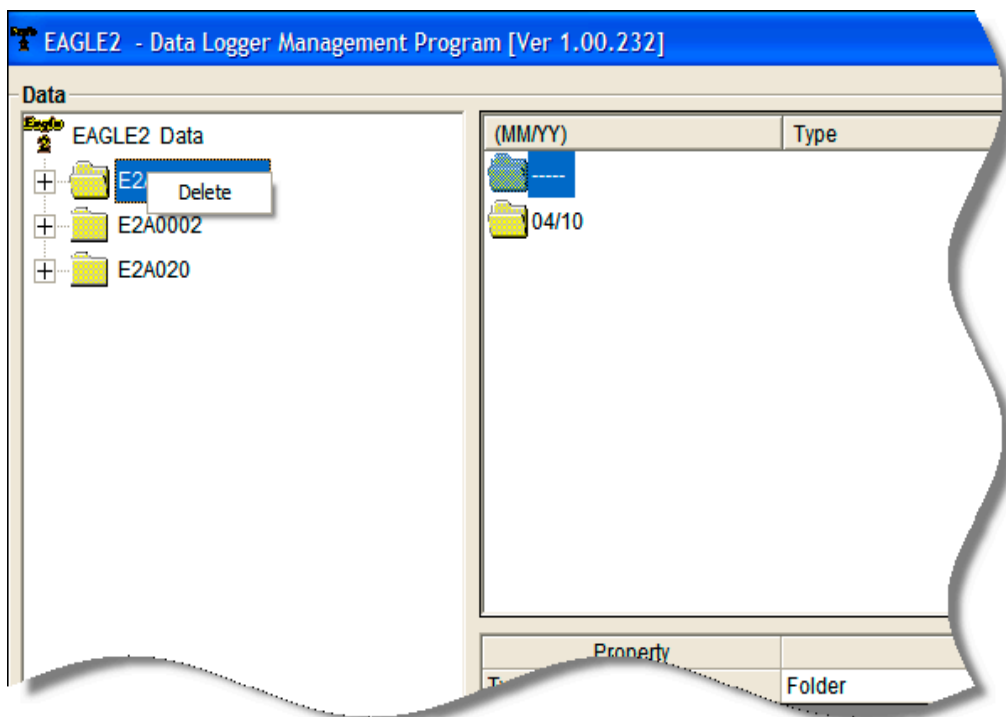
Figure 37: Delete Box

4. Click Delete with the left mouse button. The Password Window appears.
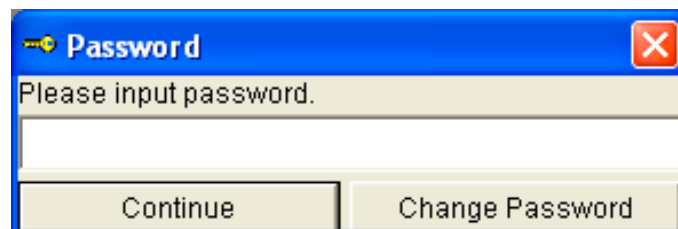
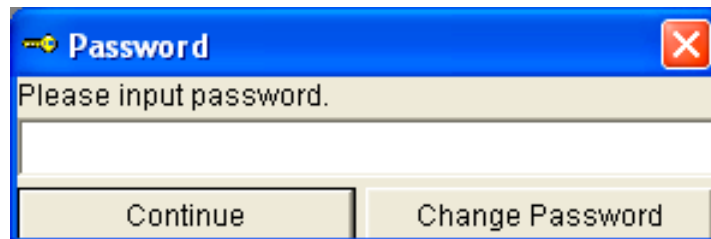**Figure 38: Password Window**

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 Password" on page 48 for instructions to change the password if desired.

6. When the password has been entered and **Continue** clicked, the Delete Data Window (if a folder is selected for deletion) or Delete Sample Window (if a file is selected for deletion) will appear asking you to confirm that you want to delete the selected folder or file. In the example below, the Delete Data Window appears because the data folder shown in Figure 37 has been selected for deletion.
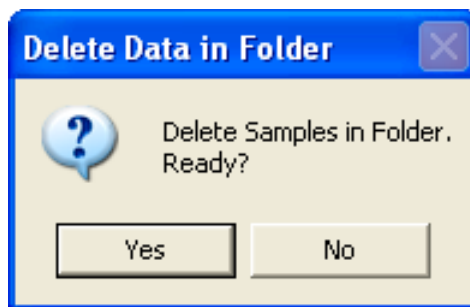
Figure 39: Delete Data Window

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 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.
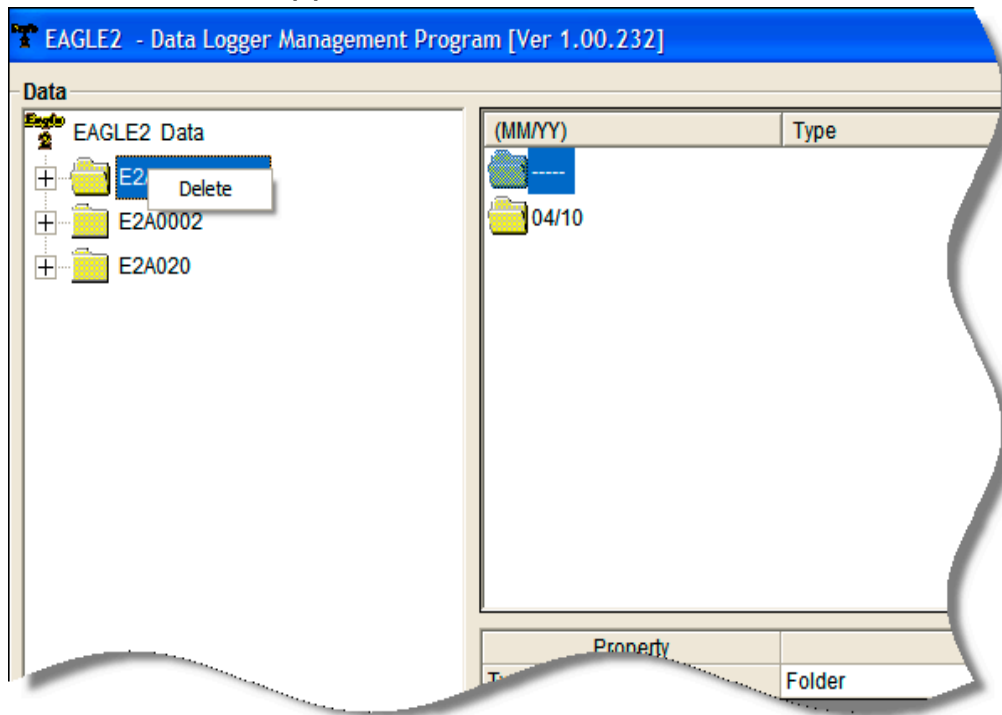
Figure 40: Delete Box

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

Figure 41: Password Window

3. Click **Change Password**. The Password Window asks you to input the current password.
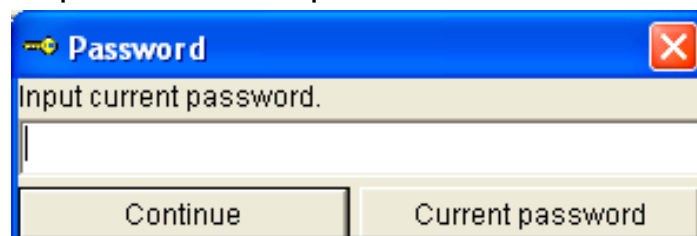
Figure 42: Inputting Current Password

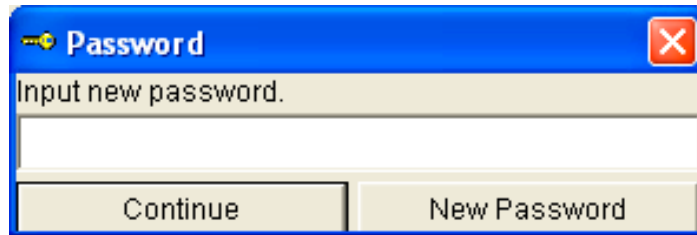4. Type the current password, then click **Current password**. The Password Window asks you to input the new password.

Figure 43: 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.
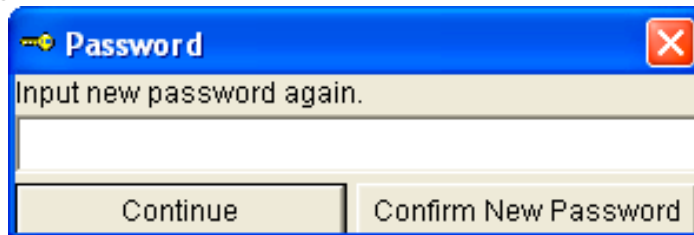
Figure 44: Confirming New Password

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 45: Confirming New Password

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

Viewing, Printing, and Deleting Data in the 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 46: 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 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.
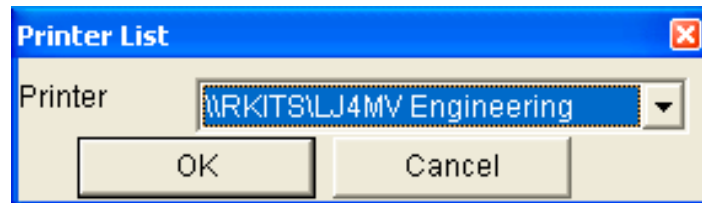
Figure 47: Printer List Dialog Box, Need Calibration View Option

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 48: 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.
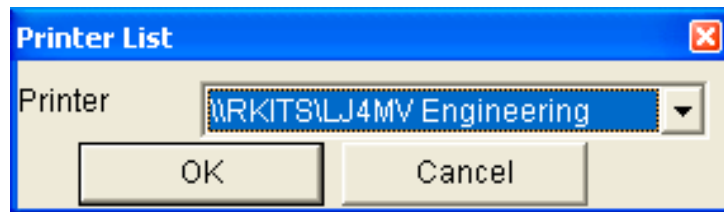

Figure 49: Printer List Dialog Box, Calibration Date View Option

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.

Figure 50: 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" on page 23.

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.

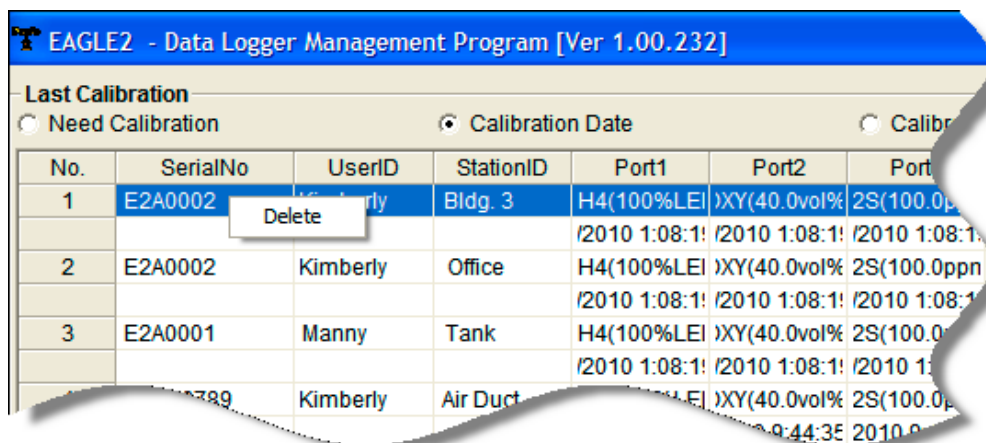4. Click the row with the right mouse button. The Delete box appears.

Figure 51: Delete Box

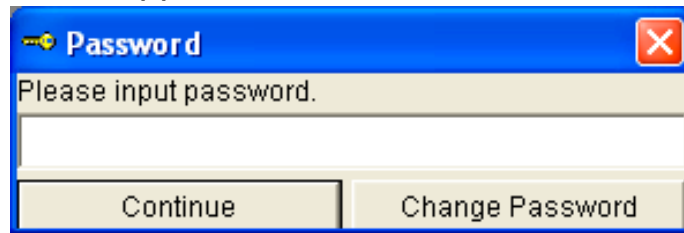5. Click Delete with the left mouse button. The Password window appears.

Figure 52: 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 Password" on page 48 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.
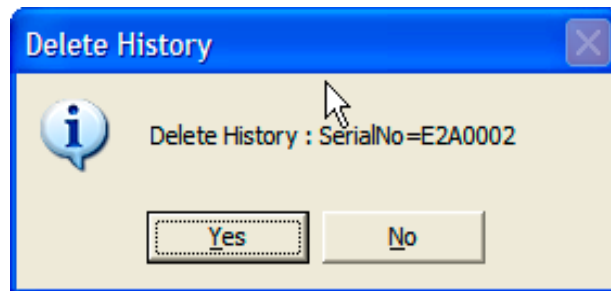

Figure 53: Delete History Window

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.

Calibrating an Eagle 2 With
The Eagle 2 Data Logger
Management Program

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. See "Downloading Data from the Eagle 2" on page 15 and follow instructions 1-3 to connect an instrument to the program.

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.

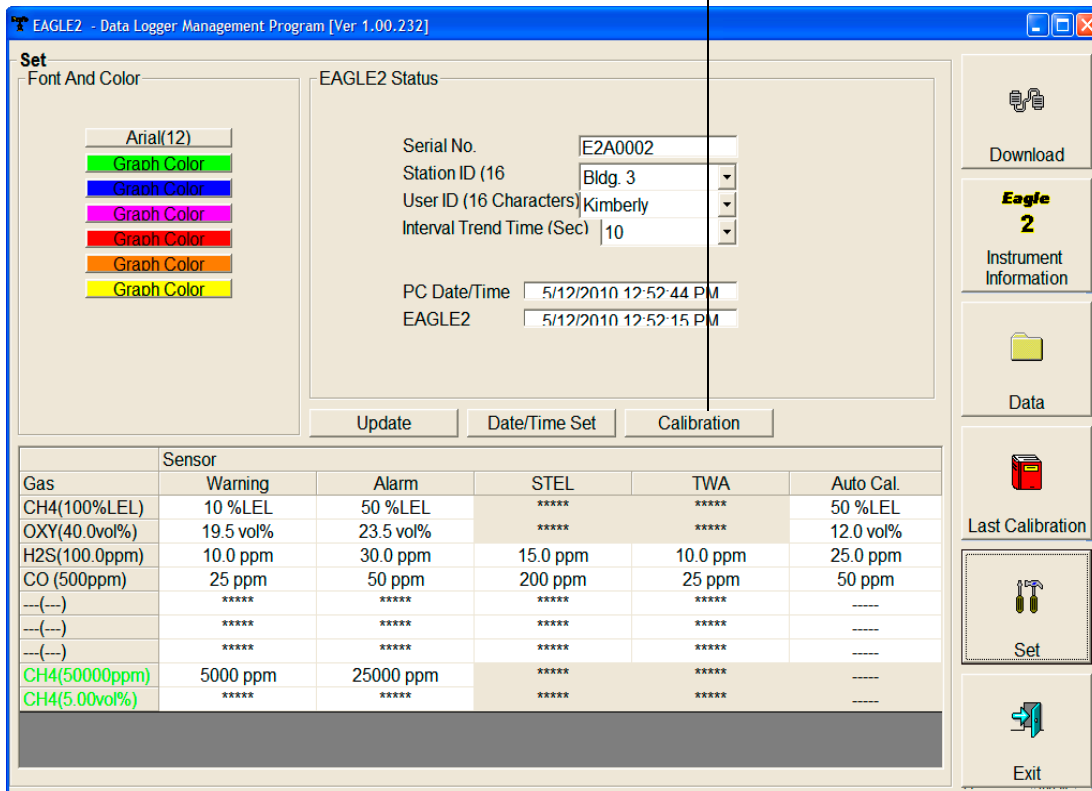**Click to begin calibration of Eagle 2**

Figure 54: Set Window

7. Click the **Calibration** button in the Eagle 2 Status frame. 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.
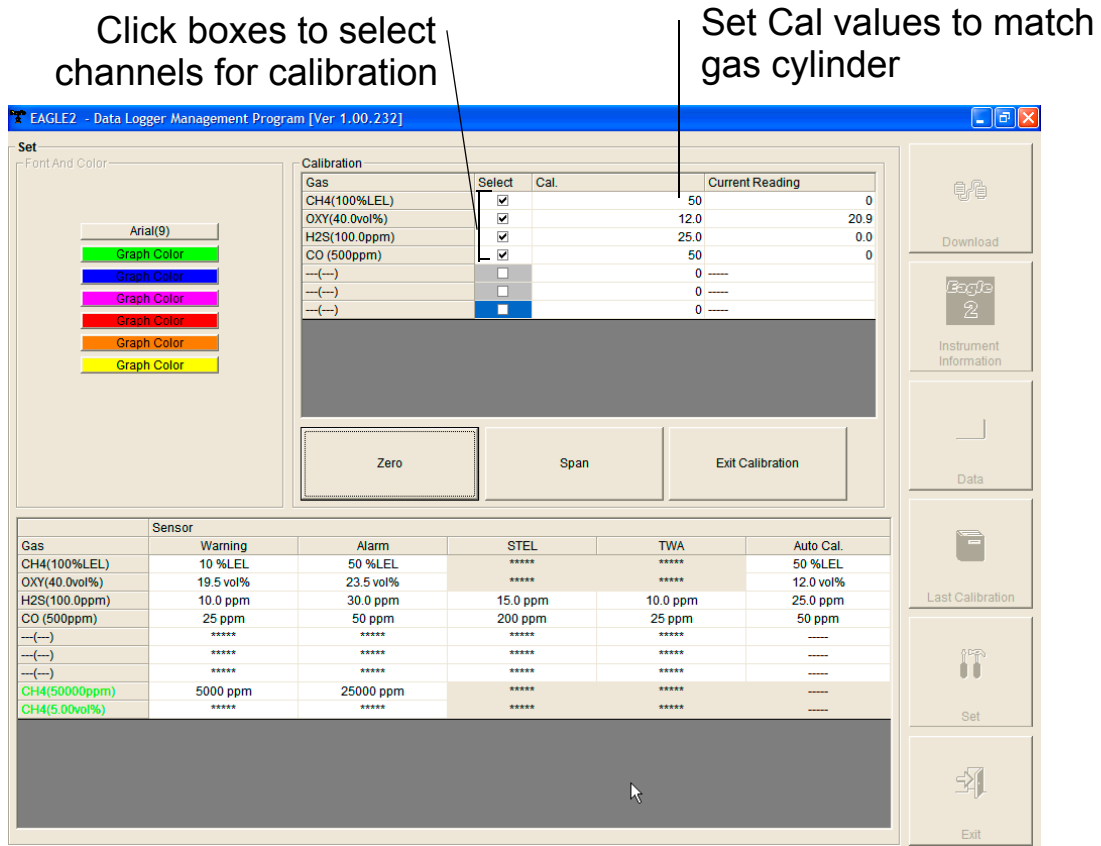
Click boxes to select
channels for calibration

Set Cal values to match
gas cylinder

Figure 55: Set Window With Calibration Frame

8. Use the selection boxes under the Select column to select the channels you want to calibrate.

9. Click the **Zero** button. The software will perform a zero adjustment setting the oxygen channel to 20.9% and all other channels to 0.

10. 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.

11. 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.

12. Screw the demand flow regulator onto the calibration cylinder.

13. Connect the regulator to the Eagle 2 probe tube using the sample tubing provided with the calibration kit.

14. Allow the gas to flow for one minute. The current gas readings will be shown in the Current Reading column.

15. Click the **Span** button. The program will make the span adjustments.

16. Disconnect the tubing from the Eagle 2's probe tube.

17. Remove the regulator from the cylinder.

18. 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.

19. If you wish to use other functions in the software, click one of the control buttons.

20. 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.

Changing Eagle 2 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. See "Downloading Data from the Eagle 2" on page 15, instruction 1 through instruction 3, to connect an instrument to the program.

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.
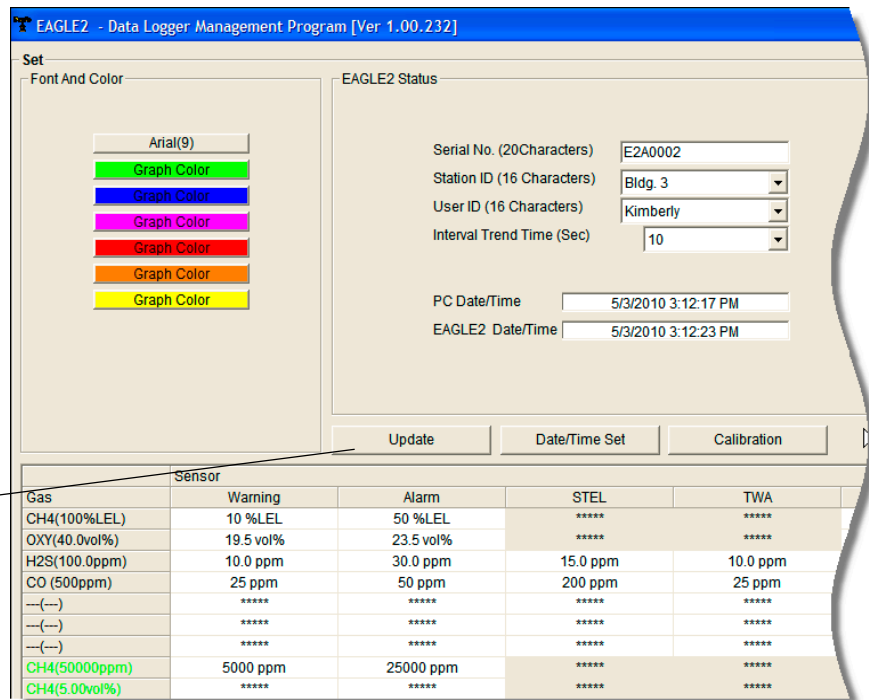
Click to upload changes to Eagle 2

Figure 56: Set Window

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.
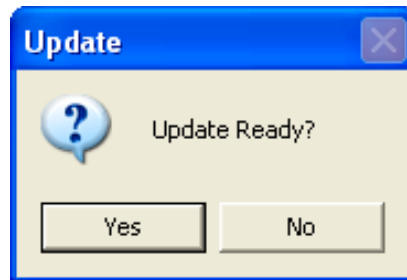

Figure 57: Update Window

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 the Appearance
of the Program Screens

To change how information is displayed in the program (e.g., text font or graph colors), use the program's Set Window. Follow the steps below to make changes.

Set

1. Launch the Eagle 2 Data Logger Management Program.

2. Click the **Set** button to display the Set window. Use the Font And Color Frame in the left side of the window to change fonts and graph colors.

Click to change font type

Choose these options to change the graph colors for the target gases

Figure 58: Set Window, Changing Fonts and Graph Colors

3. Specify new fonts by clicking the button with the name of a font inscribed on it. This action will display the Font Window. Choose the font type, style, size, and script, then click **OK**.
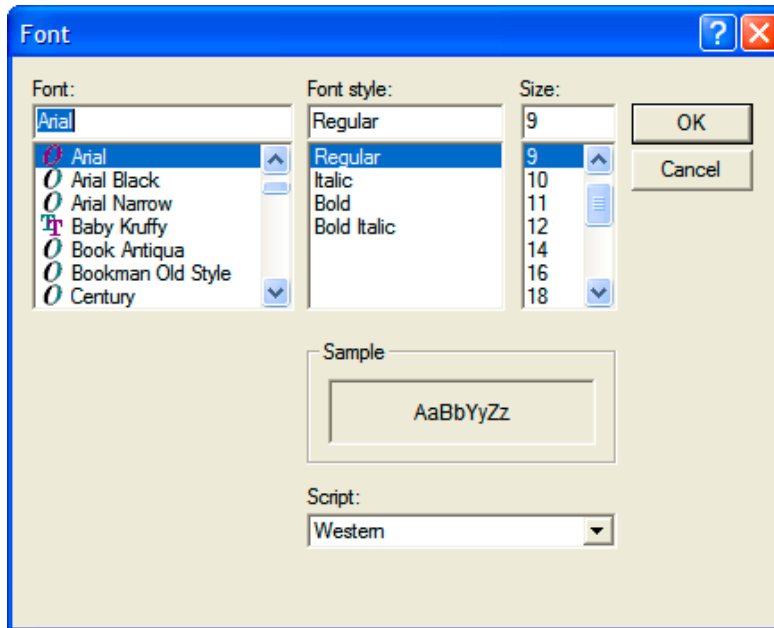
Figure 59: Font Window

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 in the Font and Color frame. The six Graph Color buttons correspond to the 6 possible Eagle 2 channels. From top to bottom, they correspond to channels 1-6.
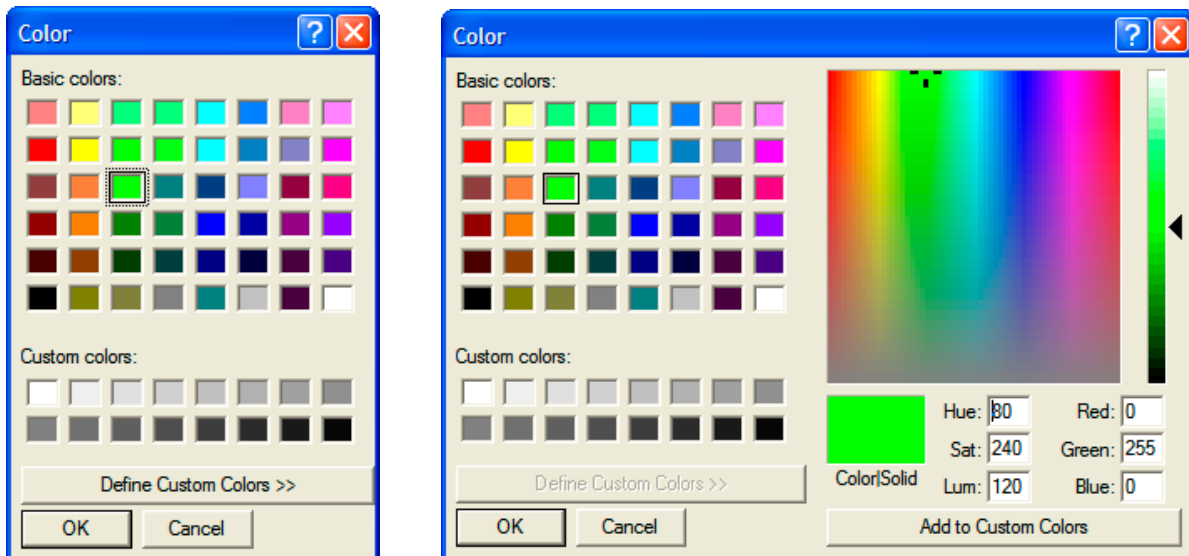

Figure 60: Color and Custom Color Windows

- 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.

Spare Parts List

Table 2: Spare Parts List

Part Number	Description
49-5027RK	Cable, USB/IrDA adapter
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