

YES Environment Technologies Inc.

**YES-206LH Series
*Indoor Air Quality Monitor - Logger***



OPERATION MANUAL

REV: C Mar-12-2003

*Unit 145, 7391 Vantage Way Delta, BC V4G 1M3
Canada Phone: 604-940-7007 Fax: 604-940-7044
www.yestek.com*

IMPORTANT NOTE

Read and understand this manual prior to using this instrument.

This instrument should be inspected and calibrated by qualified and trained technicians.

This instrument has not been designed to be intrinsically safe. For your safety, **DO NOT** use it in classified hazardous areas (explosion-rated environments).

INSTRUMENT SERIAL NUMBER: _____

PURCHASE DATE: _____

PURCHASED FROM: _____

WARRANTY POLICY

YES Environment Technologies Inc. warrants this instrument to be free from defects in materials and workmanship for a period of two years, including sensors, from the date of purchase by the original owner. If the product should become defective within this warranty period, we will replace/repair it at our discretion.

The warranty status may be affected if the instrument has not been used and maintained as per the instructions in this manual or has been abused, damaged or modified in any way. This instrument is only to be used for purposes stated herein. The manufacturer is not liable for auxiliary interfaced equipment or consequential damage.

Due to ongoing research, development and product testing, the manufacturer reserves the right to change specifications without notice. The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of this data.

All goods must be shipped to the manufacturer by prepaid freight. All returned goods must be pre-authorized by obtaining a return merchandise authorization (RMA) number. Contact the manufacturer for a number and procedures required for product transport.

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REVISIONS

This manual was written and published by YES Environment Technologies Inc. (the manufacturer). The manufacturer makes no warranty or representation, expressed or implied including any warranty of merchantability or fitness for purpose, with respect to this manual.

Should you detect any error or omission in this manual, please contact the company at the following address:

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WELCOME

Thank you for purchasing our YES-206LH multi-sensor, indoor air quality monitor. The YES-206LH series of instruments are easy to use monitoring and data recording devices for monitoring trends in air quality.

The YES-206LH is equipped with built-in temperature and humidity sensors to aid in verifying gas readings providing a comprehensive indication of indoor air quality. Data readings are stored in a built-in, self-powered, programmable data logger with bullet-proof memory to protect your data and a sample rate that is adjusted using the supplied software. The instrument may be hand-held or will easily stand on a flat surface.

Calibration and repair is available at our manufacturing facility and through some of our authorized distributors.

The YES-206LH can reliably record time-based data, which can be downloaded via ACR Trend Reader software, onto any computer capable of running Microsoft Windows 95 or higher (with an available serial communications port).

If after reading through the manual, you have any questions, please do not hesitate to contact our service department for technical support.

MODEL DESCRIPTION

<u>MODEL</u>	<u>DESCRIPTION</u>
YES-206LH	Three integral sensors: CO2, Temperature, Humidity

Note-1: See specifications section (pages 9 -10) for list and specifications for available toxic gas sensor options

Note-2: The previously available model YES-206L has been discontinued.

YES-206LH SHIPPING CHECKLIST

This checklist ensures that you have received everything required to run your IAQ monitor / logger. If you do not receive any of the items listed below, contact the factory immediately:

- YES-206LH multi-gas monitor/logger
- ACR TrendReader software
- Communications cable
- AC wall adapter 6V @ 400 mA
- Carrying case
- Calibration accessories (hose & coupling)
- Operation manual
- Other specified accessories (please refer to original sales order and the comments below):

Date: _____

Checked by: _____

1.0 GENERAL

The YES-206LH is a battery powered, portable indoor air quality (IAQ) monitor - logger. A basic instrument includes a two-line LCD alpha numeric display, rechargeable battery pack, built-in programmable data logger, three sensors (Carbon Dioxide, Temperature and Relative Humidity), carrying case and basic accessories.

2.0 SPECIFICATIONS

Physical:	a) Dimensions: 3" (76 mm) Wide X 6.5" (165 mm) High X 2" (51 mm) Deep b) Weight: 13 ounces (370 g)
Construction:	Rugged ABS plastic enclosure with vented cover
Power:	Internal: Rechargeable, lead acid battery pack Continuous: Plug-in, 6VDC wall adapter
Visual:	Two-line LCD alphanumeric display Push-buttons for user access
Option:	Internal, automatic sample pump (for CO2 only)

Minimum System Requirements to Operate Data Logging Software:

- Personal computer
- A Pentium II class processor or better
- 4MB RAM
- A VGA monitor
- An open COM port
- A hard disk with at least 1 MB of available disk space. Additional space is required to store logger files and graph files.
- Microsoft Windows 95 or higher
- Mouse (recommended)

2.0 SPECIFICATIONS, CONT'D.....

The YES-206LH instruments use the **Non-Dispersive Infrared (NDIR)** method of detecting Carbon Dioxide. This method is based on the principle that Carbon Dioxide absorbs infrared energy at uniquely characteristic frequencies. The technique involves determining the difference in infrared energy absorption over all wavelengths passed by the optical system between a gas sample cell, containing the Carbon Dioxide compound and a pre-set reference path.

In the YES-206LH, a broad band infrared source emits energy, which is filtered, to produce a narrow range of frequencies characteristic of the Carbon Dioxide absorption spectra. The "band filter" allows for only those frequencies that are absorbed by Carbon Dioxide, to pass into the detector while blocking all other frequencies. Carbon Dioxide located in the gas-sample cell selectively absorbs energy propagating to the detector.

This change in energy is detected, amplified and sent to the signal-processing portion of the system. It's measurement range of 9,999 ppm covers the range required to monitor compliance with ASHRAE or other ventilation efficiency standards.

Note: The CO₂ sensor installed is specified to be accurate to within 5% of the reading. The unit has been designed to exhibit minimal output drift for long periods of time. However, annual calibration verification is strongly recommended to ensure the continued satisfactory performance of this device.

CO₂ SENSOR SPECIFICATIONS:

Operating Principle	Non-dispersive infrared (NDIR)
Gas sampling method:	Diffusion (standard) Sample Draw (option)
Measurement Range:	0 - 9,999 ppm
Resolution:	1 ppm
Long Term Drift:	+/- 100 ppm
Response Time:	>1 minute for 90% step change
Warm Up Time @ 22° C	5 minute operational, 20 minute for maximum accuracy
Calibration Frequency:	2 years, 1-year for best accuracy
Operating Temperature:	0° to + 50° C
Operating Humidity:	0% to 95% non-condensing
Operating Life:	10 years

2.0 SPECIFICATIONS, CONT'D.....

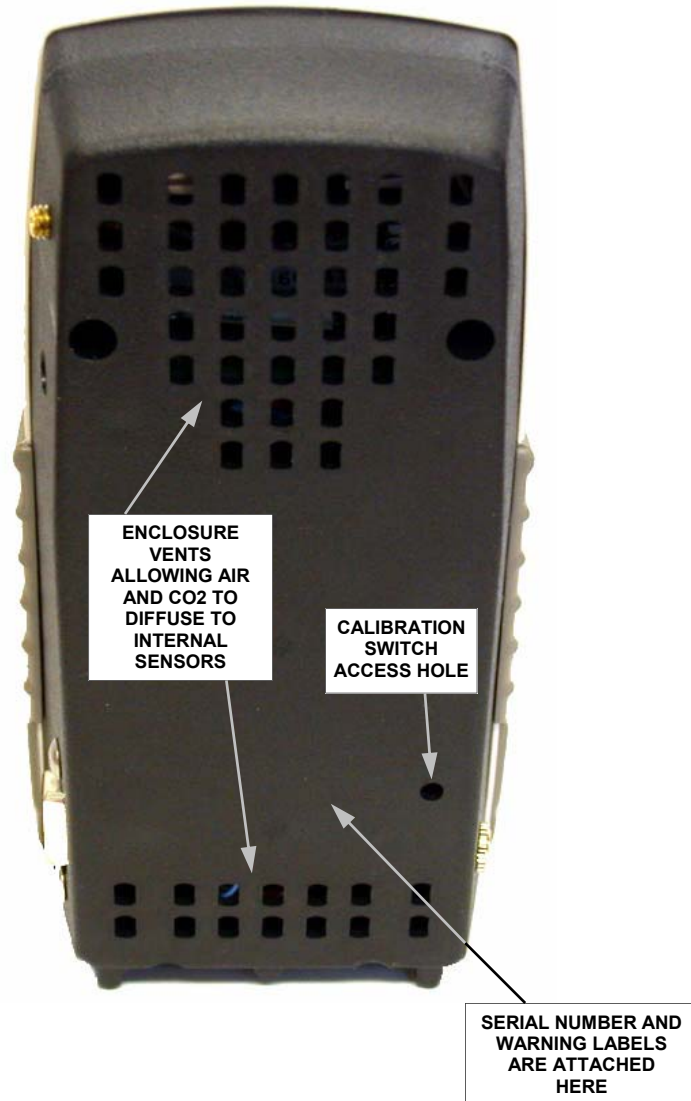
TEMPERATURE & HUMIDITY SENSOR SPECIFICATIONS:

Gas sampling method:	Diffusion (standard)
Measurement Range:	Temperature: 0 - 50°C (32° to 122° F) Humidity: 0 - 100% RH
Resolution:	Temperature: 0.1° C Humidity: Better than 0.4%
Accuracy:	Temperature: +/- 0.5° C Humidity: +/- 2%
Warm Up Time @ 22° C	5 minute operational, 20 minute for maximum accuracy
Calibration Frequency:	2 years, 1-year for best accuracy

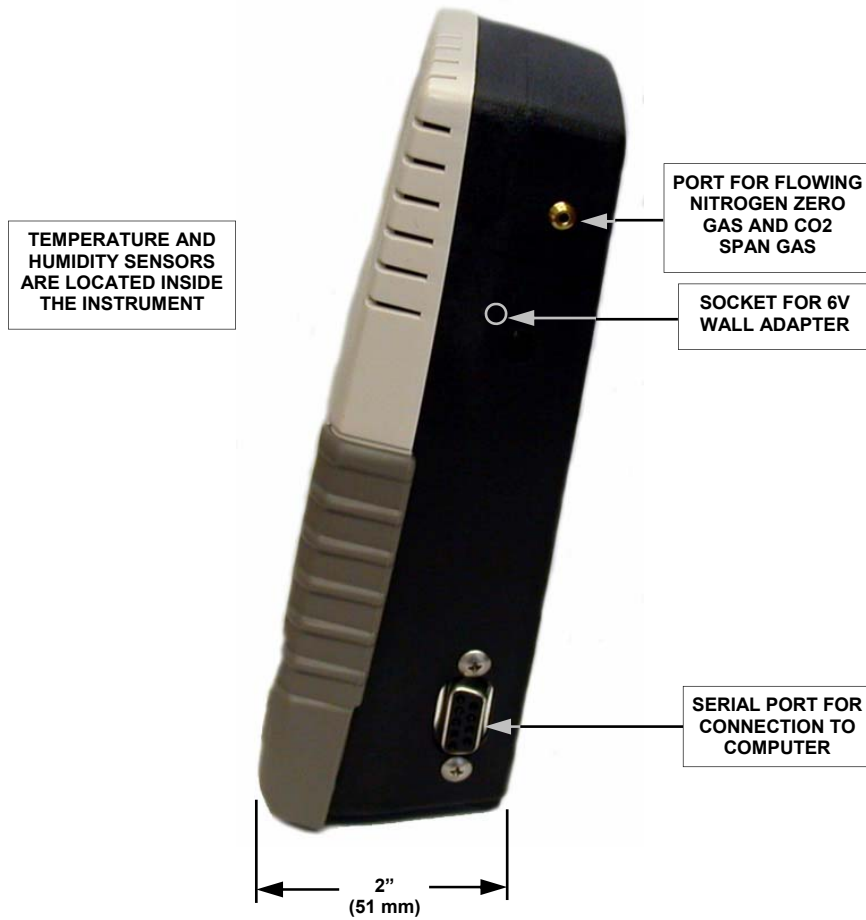
3.0 INSTRUMENT EXTERIOR PHOTOGRAPH



3.1 INSTRUMENT BACK PANEL PHOTOGRAPH



3.2 INSTRUMENT SIDE PANEL PHOTOGRAPH



INSTRUMENT VIEW IS TO THE LEFT OF THE DISPLAY

4.0 DISPLAY

Carbon Dioxide and temperature are displayed on the LCD display. Carbon Dioxide is displayed on the first line in "ppm", to a maximum of 10,000 ppm. Temperature is displayed on the second line in degrees "C" or "F".

The following are other modes of operation visible on the LCD display and accessible through the front located push-buttons.

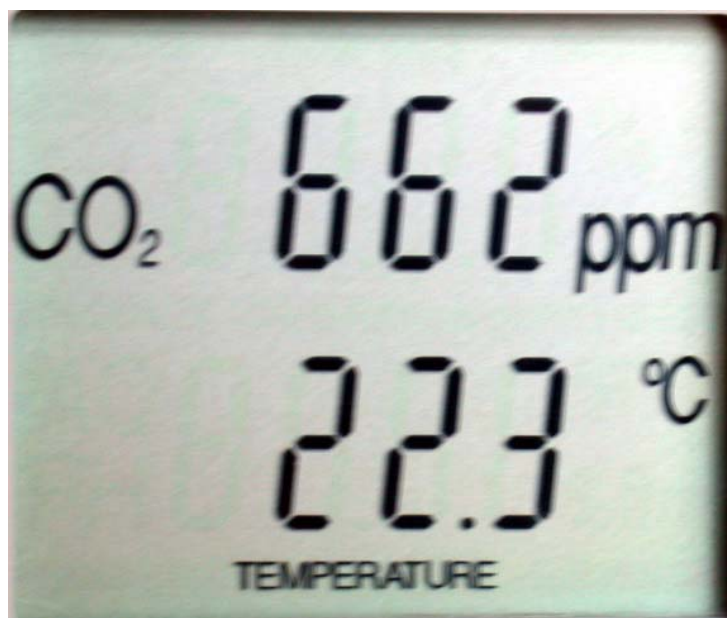
Warm-Up Mode: When the power button is pressed, the monitor enters a one-minute warm-up cycle indicated by the word "Warm-Up" in the upper left corner of the display.

Normal Operating Mode: After warm-up, the sensors have stabilized and the current measurements are displayed. **Note:** *Relative Humidity is measured and data logged but not indicated on the LCD display.*

Elevation Setting Mode: This feature allows the user to correct the Carbon Dioxide sensor for elevation changes.

"**Calibration In Prog Mode**": The message is displayed when calibration is in progress.

ALPHANUMERIC LCD DISPLAY



4.1 EXTERNAL CONNECTIONS

Serial Port (COM port)

This port allows the user to connect the instrument to the computer with the supplied communications cable to download recorded data. The cable attaches to any serial port on the computer. (Reference photos on page 12).

Power Jack

This allows the user to plug in the supplied 6V wall adapter to charge the internal battery or operate the instrument continuously for long periods of monitoring and recording. Without external power, the internal battery will operate the instrument for approximately 2 hours.

Note-1: In order for the main battery to be properly recharged, the YES-206LH must be plugged into the AC adapter for approximately 12 hours.

Note-2: *"Important Battery Life Information"*; In order to preserve the life of the internal lead acid battery, **DO NOT** discharge the battery to 0% unless it is absolutely mandatory. 70% maximum discharge is optimal. Please use only the supplied AC adapter for this purpose.

Calibration Port

This is a fitting to which the user attaches the calibration hose for the purpose of calibration or gas testing.

5.0 INSTRUMENT OPERATION

Power-Up

Press the “**power**” button and the display will become visible within approximately 2 seconds. The CO₂ value will be displayed within approximately 10 seconds. “**Warm-Up**” will be displayed for approximately 1 minute. During this entire period, adjustments cannot be made to the instrument through the push-buttons.

Elevation Correction

The sensor is shipped with the elevation setting set at “**0**” or sea level. The CO₂ sensor is affected by altitude changes. If you are at an altitude greater than 500 feet, an adjustment should be made to assure sensor accuracy. To change the default setting, using Elevation Correction, follow these steps:

1) While in normal operating mode, press the “**mode**” button once. “**ELEVATION**” will begin flashing. Next, press “**enter**”.

Press the “**mode**” button to toggle the displayed elevation reading between feet (ft.) and meters (m).

Use the “**▲**” / “**▼**” buttons to adjust the altitude. The altitude can be adjusted in increments of 500’ (100 meters). Once the correct altitude is displayed, press “**enter**” to lock the setting and return to normal operation.

Display in Fahrenheit or Celsius

To change the temperature to read in Fahrenheit or Celsius or to turn off the temperature display, use the “**▲**” / “**▼**” arrow buttons.

Setting and Using the Internal Data Logger

The internal data logger should be adjusted to desired logging settings before instrument use. Refer to the

Stand-Alone Monitoring

Once the battery pack has been charged and the elevation correction has been made, the sensor will begin to accurately display current room conditions.

6.0 CALIBRATION

The sensors utilized in the YES-206LH have a specific life span (refer to specifications section) and require regular calibration throughout their life span to maintain best accuracy. The calibration procedures described on the following pages provide the user with step-by-step instructions in how to achieve calibration of all sensors with the exception of temperature and humidity. It is recommended that a trained technician perform these tasks.

CO2 SENSOR

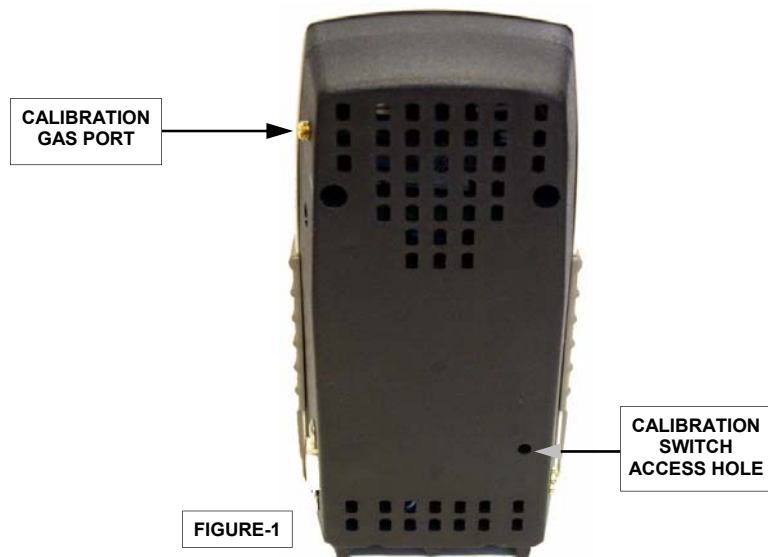
Equipment required:

- CO2 span gas (1000 ppm suggested) with balance N2
- Calibration hose and fitting (supplied)
- Cylinder regulator with pressure gauge and fixed flow rate of 0.1 or 0.2 LPM

Note: A standard YES calibration kit is recommended

One-Point Span Calibration

- 1) Press the "Mode" button until the word "CALIBRATION" flashes on the display.
- 2) Press the "Enter" button, to go into the calibration menu, two readings will be shown, the current reading will be shown on the top portion of the display, and the one point calibration setting will be shown on the bottom



6.0 CALIBRATION, CONT'D.....

- 3) Insert hose with brass coupling (included) and tighten onto "Calibration Gas Port", located on the top left side of the instrument. Refer to figure-1 photo on page 23. Flow Gas at 0.2 LPM.
- 4) Using Up/Down buttons, adjust the one-point calibration setting to match your gas concentration.
- 5) Insert the supplied clear plastic rod through the calibration switch access hole (refer to figure-1 photo on previous page) and hold it for 4 to 5 seconds until the word "CALIBRATION" begins to flash on the display.
- 6) Press the "Enter" button on the front of the instrument and the words "CALIBRATION IN PROGRESS" starts flashing.
- 7) After approximately 5 minutes of averaging the readings, the "CALIBRATION IN PROGRESS" message will stop flashing and that indicates calibration is complete.
- 8) Press "Enter" button to accept the settings and return to normal operation display.

Calibration of Temperature

An accurate temperature reference will be required to make this adjustment

Push the "Mode" button until the word "Temperature" begins to flash on the display.

Push the "Enter" button and "Temperature" will begin to flash. Adjust the temperature value with the Up/Down arrows until it matches the your reference.

When the desired reading is reached, press the "Enter" button to accept the setting and return to the normal operation.

Note-1: Calibration of relative humidity sensor cannot be achieved through instrument push-buttons. Please contact manufacturer.

Note-2: Zero calibration of CO2 sensor cannot be achieved through the instrument push-buttons. It can only be achieved with the use of software which can be obtained from the manufacturer.

7.0 DATA LOGGER OPERATION

INTRODUCTION

All YES-206LH instruments are supplied with a powerful, built-in, programmable, 12-Bit data logger. The data logger is manufactured for YES by ACR Systems and utilizes the famous *TrendReader* software. The data logger will record data accurately and reliably over long deployment periods and in widely varying environmental conditions.

TrendReader is the interface software that communicates with our data logger and transfers the recorded samples to a PC. The data can then be viewed as a graph file and exported to an Excel spreadsheet. The following section outlines the basic use of Trend Reader software. A more detailed description can be found on the Trend Reader manual on the supplied cd.

Before being able to use the *TrendReader* software, it must first be installed onto the hard disk of your computer. Once *TrendReader* has been loaded on your PC, it allows you to:

- Configure your YES-206LH data logger
- Display real-time values
- Transfer logger values to your PC and create logger files
- View and print graph files
- Export graph files into databases or spreadsheets

INSTALLING TREND READER FOR WINDOWS

1) Start Windows

2) Insert the CD ROM, supplied with your instrument, into your CD ROM drive. **Note:** This CD will not auto run.

3) Click on Trend Reader folder and execute the file "**tsf1p21**". The Trend Reader screen will appear. Click "ok" to continue, then follow the instructions on the screen. Once the installation is complete, move to the next step.

7.0 DATA LOGGER OPERATION, CONT'D.....

USING TREND READER FOR WINDOWS

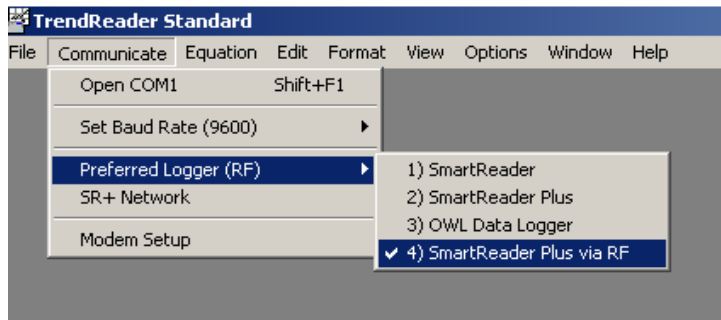
Now that *TrendReader* has been installed, it can be started by clicking on the icon or going to start, programs, ACR data logger software, Trend Reader Standard 1.21, Trend Reader Standard v1.21 (full).

Screen Layout: The layout of the *TrendReader* screen is shown below:



NOTE: When the instrument is switched off, the data logger continues to record valid temperature samples unless you attach the instrument to the computer and disable it.

SETTING UP LOGGER TYPE



From the Communicate menu click on "Preferred Logger (RF)" and select "4) SmartReader Plus via RF"

7.0 DATA LOGGER OPERATION, CONT'D.....

SETTING UP YOUR COMPUTER'S SERIAL PORT

The Trend Reader software automatically detects an available COM port. No manual COM selection is required.

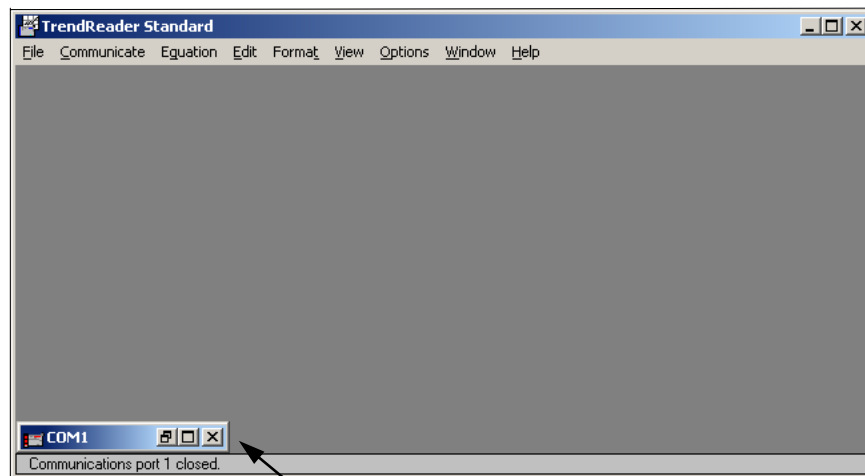
DATA LOGGER SELECTION

Click on "COMMUNICATE" tab on tool bar and select "PREFERRED LOGGER (RF)". Select "4) SMART READER PLUS RF".

CONNECTING THE YES-206LH TO THE PC

Ensure the YES-206LH is switched off prior to performing the following connection. Connect the male end of the supplied DB-9 cable to the female connector of the YES-205, and connect the female end to an open 9-pin COM port on your PC. If your computer

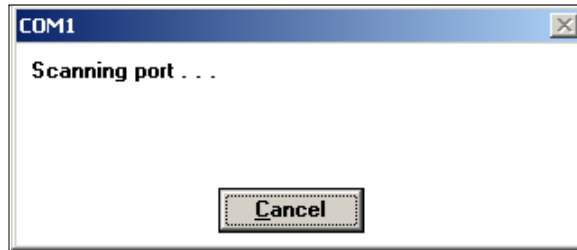
NOTE: When the instrument is switched off, the data logger continues to record valid temperature samples unless you attach the instrument to the computer and disable it.



NOTE: THERE WILL BE MORE COM PORT TABS ON THE SCREEN IF AVAILABLE IN YOUR PC.

7.0 DATA LOGGER OPERATION, CONT'D.....

Once you click on “**OPEN COM**”, the software will start scanning the port for a connected YES-206LH.



7.0 DATA LOGGER OPERATION, CONT'D.....

CONNECTING THE YES-206LH TO THE PC, CONT'D.....

While the *TrendReader* software is attempting to establish communication with the instrument, the YES-206LH LCD display will indicate “**REMOTE HOST MODE**”.

Once communication has been established, Smart Reader Plus dialogue box will appear (see next page). SMART READER automatically starts in real-time mode by default.

7.0 DATA LOGGER OPERATION, CONT'D.....

NOTE: BEFORE ATTEMPTING TO CHANGE ANY SETTINGS, YOU MUST CLICK ON EDIT "SET UP" TAB TO TOGGLE TO SET UP MODE

NOTE: BY CHECKING "STOP WHEN FULL" BOX, THE LOGGER WILL STOP SAMPLING WHEN IT IS FULL. YOU MUST CLEAR THE DATA BEFORE PROCEEDING

The screenshot shows the SmartReader Plus software interface. At the top, it displays 'Serial Number: 58257', 'Filename: SN58257', 'Time: 8:57:11 AM', and 'COM2'. Below this are buttons for 'Back Up', 'Edit Setup', 'Clear Stored Data', and 'Close'. The 'Edit Setup' section includes fields for 'Sample Rate' (120 sec), 'Start Delay' (0 sec), and 'Number of Readings' (87000). A 'Mode' section has checkboxes for 'Stop When Full', 'Fast Read', and 'Alarm Dialout'. A 'Data Stored: 1 day, 16 minutes.' label is present above a data table. A 'Realtime Mode' label is also visible.

#	ON	Channel	Eqn #	Low	Mid	High	Ext	Realtime
0	NO	N/A	1	0	0	0	0	Inactive
1	YES	TEMP	199	1.172	1.172	0	0	21.89 °C
2	YES	RH	195	-1.016	-1.016	0	0	40.45 %
3	YES	CO2	184	0	3.008	0	0	491 PPM
4	NO	N/A	1	0	2.891	0	0	Inactive

SETTING SAMPLE INTERVALS

The software allows you to change sample rates on your YES-206LH to suit the requirements of your application. You can set up faster sampling rates to capture rapidly changing data or space out your readings to maximize memory and cover extended monitoring periods. To change the sample rate on your currently-connected YES-206LH, Click on "Sample Rate" and select desired sample rate. **Note:** Ensure that you are in "Edit Setup" mode before doing this.

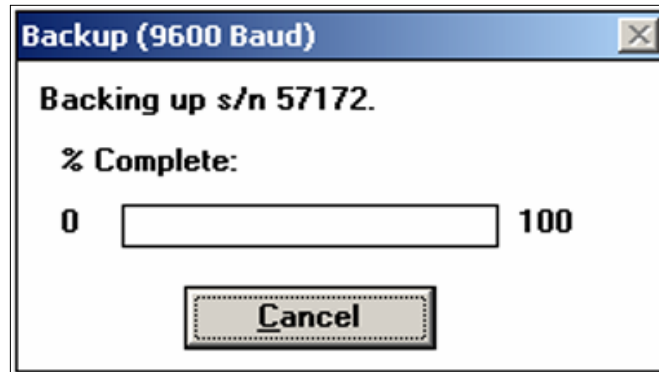
Minimum Sample Interval: 8 seconds

Maximum Sample Interval: 8 hours

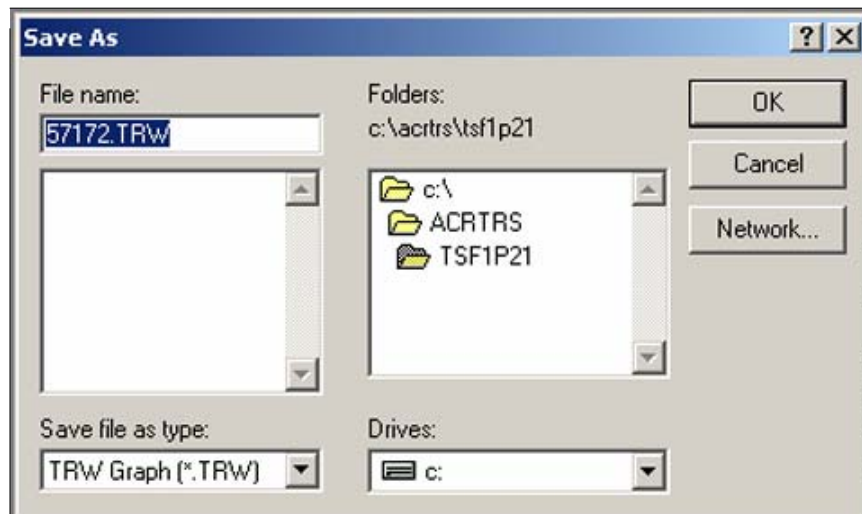
7.0 DATA LOGGER OPERATION, CONT'D.....

DATA TRANSFER

To transfer logged data from the YES-206LH to the PC, click on "Back Up" tab and the following dialogue box will appear.



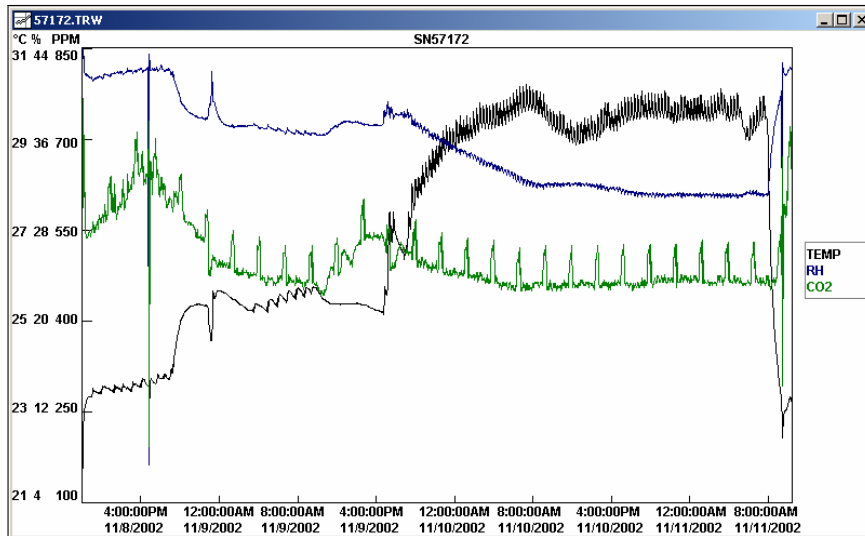
Data is transferred into a temporary memory location. The following dialogue box will prompt you to specify the file name and location to save the data for future reference.



7.0 DATA LOGGER OPERATION, CONT'D.....

DATA TRANSFER, CONT'D.....

Once data has been saved to the specified location the following graph file will automatically open. Each channel will be displayed in a different colour for easier identification.



WORKING WITH GRAPHS

The Difference between Logger Files and Graph Files

TrendReader usually follows the Windows style of handling files. There is, however, one important difference: how *TrendReader* distinguishes between logger file and graph files.

Logger files

When you copy a logger's data to your computer using the backup function, *TrendReader* will automatically save all the data (internal and / or external channels) in one file. *TrendReader* calls this file a logger file and gives it a .TRW extension.

Graph files

When you open a logger file and choose one or more channels, a graph will be displayed. If you make any changes or add any comments to the graph give it a name and save it, *TrendReader* will save the graph as a graph file. It will give the file the .GPW extension to signify that it is a graph file. To find this file the next time, open the graph file dialog box. DO NOT move a logger file once it is created and saved. The graph file will not be able to find it and will not open. Try to move the logger file before you create any graph files.

7.0 DATA LOGGER OPERATION, CONT'D.....

WORKING WITH GRAPHS, CONT'D.....

Never delete a logger file just because you have a graph file from the logger file's data and you think that you don't need the logger file anymore. A graph file cannot exist on its own. Every time you open a graph file it has to get data from its logger file(s) in order to open.

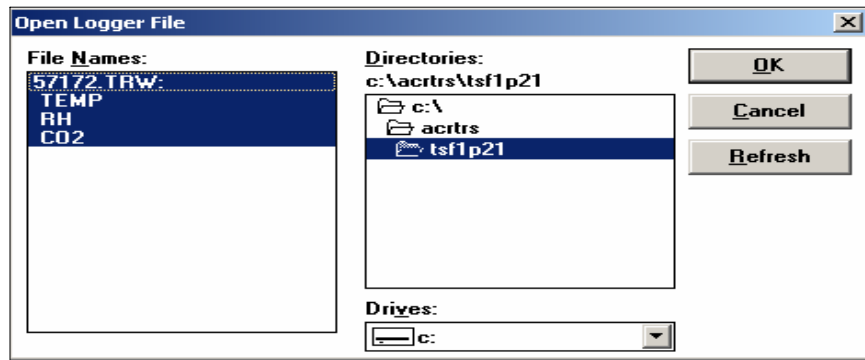
To View Logger Data without altering it:

If, when you open logger files, all you do is view the information (as a graph or table) and sometimes print the information, you don't have to bother with graph files. When you have finished viewing or printing a graph or table, close it. If you want to look at it again, open that logger file again.

As long as you don't alter it and save it under another name, you can open and close a logger file as many times as you like.

Opening Logger files to display graphs:

When you open a logger file from the File menu, the Open Logger File dialog box will appear.



TrendReader's display of logger files in this dialog box departs slightly from the usual Windows style of displaying files. A logger file name is displayed in capital letters and the names of its channels are displayed below it in lower case letters. The dialog box above is displaying two of the sample logger files that come with the *TrendReader* software. The filename of the first logger is Eg. 57172.TRW. This file contains data from three external channels. It looks as if these channels are separate files, but they are not. They are all part of the file Eg. 57172.TRW.

7.0 DATA LOGGER OPERATION, CONT'D.....

WORKING WITH GRAPHS, CONT'D.....

Opening Logger files to display graphs, Cont'd.....

57172.TRW is the name that the user gave to the file, and “.TRW” is the extension that *TrendReader* gives to every logger file.

Choosing logger channels for graphing

TrendReader allows you to combine readings from different logger channels on a single graph. These readings can be from the same time period, from different time periods, from one logger, or from different loggers.

To choose channels, open the **Open Logger File** dialog box from the File menu. In this box, a name in capital letters is a filename and refers to a logger. The information from the various channels of that logger is listed after the filename. All the data from a logger is in one file.

From the **Open Logger File** dialog box:

To choose a single channel to display as a graph, click that channel and then click **OK**

To choose more than one channel, click the channels you want to highlight, and click **OK**. You may choose channels from different loggers.

To choose all channels from one logger file (one logger), click the filename (all that file's channels will be highlighted). Click **OK**

To deselect all channels from one file, click the filename.

To deselect any individual channel(s), click the channel(s) to remove the highlighting.

When you have chosen the channel(s) you want to display as a graph, click **OK**

Opening a Graph File

If you have opened a logger file previously, made changes to the graph, given it a name, and saved it, the file is now a graph file. (The original logger file still exists.)

To open this file again:

- 1- From the File menu, choose **Open Graph File**.
- 2- From the **Open Graph File** dialog box, choose the file you want.
- 3- Click **OK**

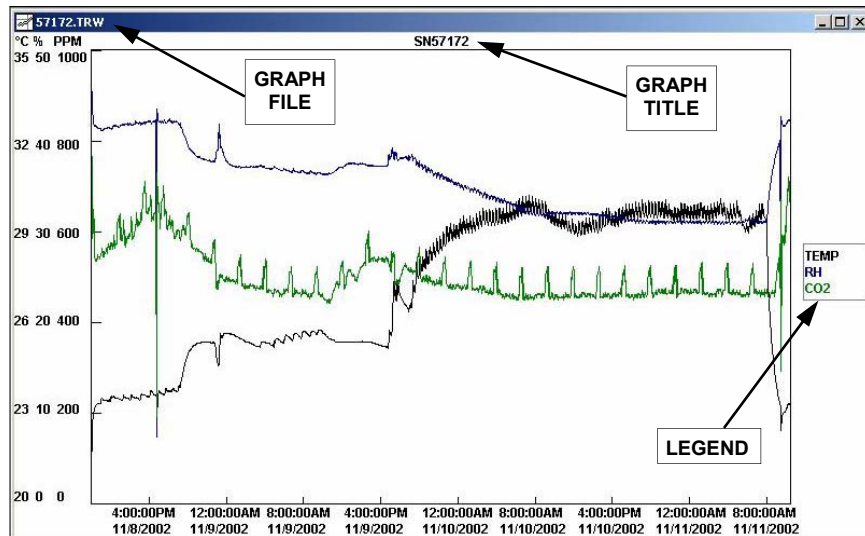
You can make changes to a graph file, but you cannot combine different graph files and display them as one graph. If you want to combine data from different logger channels or from different loggers onto one graph, you can do this only with logger files. Open logger File dialog box and combine your data from there by clicking on the channels you want to display on one graph.

7.0 DATA LOGGER OPERATION, CONT'D.....

WORKING WITH GRAPHS, CONT'D.....

A Graph Window

Whether you have opened a logger file or graph file, your graph will be displayed in the graph window.



The status bar

The status bar, at the bottom of your screen, displays data relating to the coordinates of the cross hairs on the graph. As you move the cross hairs with the mouse you will see the coordinates changing on the status bar.

Showing the legend

The legend (the names of the channels that are displayed on the graph) appears to the right of the graph when there is a check mark in front of the legend on the View menu.

Enlarging a graph Window

When you open a graph file, the graph window will not be displayed at its maximum size. You can make it fill the whole screen by clicking the maximum button in the top right corner of the windows.

The maximum button will become a restore button.

Closing graph window [Ctrl+F4]

To close a graph window, either press Ctrl+F4 or click the control-menu box in the top left corner of the window, and choose Close from the pull down menu.

7.0 DATA LOGGER OPERATION, CONT'D.....

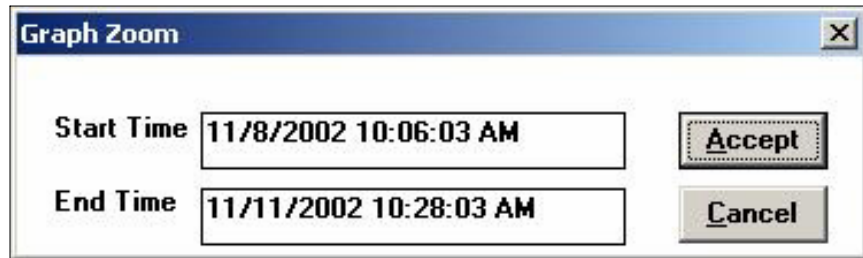
WORKING WITH GRAPHS, CONT'D.....

Zooming

The zoom function magnifies the horizontal axis (the time axis). It does not affect the vertical axis. The zoom function enables you to magnify a section of a graph so that you can see it in greater detail. The zoomed area becomes the full width of the graph, therefore the narrower the section you choose to zoom, the greater the magnification.

There are two ways to zoom: by using the mouse, or by specifying the start and end time of the zoom from the Graph Zoom dialog box. You may zoom more than once.

- A. Using the mouse to zoom in on a section of a graph:
 1. Position the cross hairs to the left of the area that you want to magnify. (It doesn't matter where you place the cross hairs vertically).
 2. Press and hold the left mouse button and drag to the right. The vertical lines that appear will be the boundaries of the magnified area.
 3. Release the mouse button when you have enclosed the area that you want to magnify.
- B. Using the Graph Zoom dialog box to zoom in on a section of a graph:
 1. Click anywhere below the graph. The Graph Zoom dialog box appears.



The image shows a screenshot of a software dialog box titled "Graph Zoom". The dialog box has a standard Windows-style title bar with a close button (X) in the top right corner. Inside the dialog, there are two text input fields. The first is labeled "Start Time" and contains the text "11/8/2002 10:06:03 AM". The second is labeled "End Time" and contains the text "11/11/2002 10:28:03 AM". To the right of these input fields are two buttons: "Accept" and "Cancel". The "Accept" button is highlighted with a dotted border, indicating it is the default action.

2. Type the new time and date. Change AM or PM if necessary.
3. Click accept.

7.0 DATA LOGGER OPERATION, CONT'D.....

WORKING WITH GRAPHS, CONT'D.....

Unzooming [Ctrl+Z]

To view the graph at its original scale, go to the View menu and choose Unzoom X-Axis.

Copying a graph to the clipboard [Shift+Ins]

Copy a graph to the clipboard is an extremely fast and easy way of transferring a graph to another Windows application, for example, to a word processing program, where it can be included in a report. **Copy Graph** to clipboard is on the **Edit** menu.

The clipboard (a temporary storage area) is a Windows feature; you can read about it in your Windows guide .

As an example, we will transfer a graph to a word processing program.

1. Open the graph that you want to place in the word processing program.
2. From **Edit** menu, choose **Copy Graph to Clipboard**.
3. Press **Alt+Tab** to transfer to Program Manager.
4. Open the Accessories window and click Write.
5. When the word processing program opens, choose **Paste** from the Edit menu.
The graph will be copied from the clipboard to the word processing program.

7.1 TROUBLE SHOOTING TREND READER SOFTWARE

Why won't Trend Reader Communicate with my logger?

If logger does not respond when communication is attempted, check that:

- The logger or modem is attached to the selected COM port
- All connections are secure between the computer and the logger
- There are no other applications using the COM port
- Only one serial port is hardware configured for each COM designation
- There are no conflicts IRQ assignments

If the logger still does not work, try:

- Testing the serial port with another application
- The software on another computer
- Other loggers or interface cable

Why Won't Trend Reader back up my logger?

If the software cannot back up the loggers data, make sure there is enough room on the hard drive to store the data

Why do my graphs have the wrong time and date on them?

This happens if your computer clock is incorrect when you back up the logger. The Trend Reader depends on your computer having the correct time and date. If your graphs have the wrong time and date you can:

Under Windows 95, 98, NT or 2000:

- Set clock on the computer by:
 1. Double click on Windows time display in the bottom right corner of the screen
 2. On the date/time properties window, change the time
 3. Click apply
- Correct the original file by choosing "**revise a logger file**" from the option menu. Change the back up time/date to the actual time you backed up the logger.

7.1 TROUBLE SHOOTING TREND READER SOFTWARE

How accurate are TrendReader time measurements?

There are two answers to this question. The first answer describes the relative accuracy of each reading. The second answer describes the absolute accuracy of the reading.

Relative Accuracy

Relative time measurements in normal mode (the time that elapse between one reading and the next reading) are precise to within $\pm 2 \cdot \text{sample rate}/24 \cdot 3600$. The accuracy of the clock inside the logger is ± 2 seconds per day.

Absolute Accuracy

TrendReader absolute time accuracy (the difference between the time the data logger took a reading and the time that TrendReader reports the reading was taken) depends upon the time base in the logger. The absolute time of TrendReader's reading are accurate to within ± 4 seconds.

When you back up your data, the logger is unable to tell TrendReader precisely when it stored its last reading. *Trendreader* only knows the current time and the elapsed time in 8 second intervals.

What rights are needed to run TrendReader on a network?

The method of granting rights varies according to which network operating system is being used. You should have the following rights:

- Create
- Erase
- Search
- Modify
- Read
- Write

(or their equivalent) to both the TrendReader for Windows and the file path directory used to store data.

Why can't I print from *TrendReader*?

1. Make sure the printer is powered and on-line by checking that it is plugged in and the associated lamps are on.
2. Check that the printer cable is connected to the appropriate port on your computer.

7.1 TROUBLE SHOOTING TREND READER SOFTWARE, CONT'D.....

Why can't I print from *TrendReader?*, Cont'd.....

3. Try the printer's self-test function by clicking on start, settings, printers and right click on desired printer's property. Click on print test page tab. If the printer fails the self test, contact your administrator.

Why can't I contact my data logger over the network?

You probably don't have **SR+** network checked "on".

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