YES Environment Technologies Inc.

YES-205 Series
Indoor Air Quality Monitor - Logger

OPERATION MANUAL

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, excluding sensors, from the date of purchase by the original owner. The sensors have a warranty period of one year from the date of purchase. 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.

NOTICES

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:

YES Environment Technologies Inc.
Unit 145, 7391 Vantage Way
Delta, BC V4G 1M3
Canada

Toll free: 1-800-663-5481
Phone: 604-940-7007
Fax: 604-940-7044
E-mail: info@yestek.com
Website: www.yestek.com

In no event will YES Environment Technologies Inc., or it's officers or employees be liable for any direct, special, incidental or consequential damages resulting from any defect in any manual, even if advised of the possibility of such damages.

INDEX

WELCOME

Thank you for purchasing our YES-205 multi-sensor, indoor air quality monitor. The YES-205 series of instruments are easy to use monitoring and data recording devices for monitoring trends in air quality.

The YES-205 is equipped with built-in (attached) 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, will easily stand on a flat surface, or fastened to a wall.

The YES-205 series of instruments are manufactured with plug-in-play, interchangeable sensor modules to allow for multiple gas testing. The specifications listed in this manual indicate a wide array of sensors to choose from. These sensors may be changed in the field and operated in minutes.

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

The YES-205 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 DESCRIPTIONS

MODEL   **DESCRIPTION**

YES-205   **Three integral sensors: CO2, Temperature, Humidity**

YES-205-4   **Four integral sensors: CO2, Temperature, Humidity, plus one**
                                    electrochemical toxic gas sensor

YES-205-5   **Five integral sensors: CO2, Temperature, Humidity, plus two**
                                    electrochemical toxic gas sensors

Note-1: When ordering an instrument, specify which extra sensors are desired.
          Eg: YES-205-5 c/w CO and NO2 sensor

Note-2: See specifications section (pages 9 to 19) for list and specifications for
          available toxic gas sensor options

YES-205 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-205 multi-gas monitor/logger
- ACR TrendReader software
- Communications cable
- AC wall adapter 24V @ 400 mA
- Pelican brand carrying case (after January 2, 2003)
- 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-205 is a battery powered, portable indoor air quality (IAQ) monitor - logger. A basic instrument includes a multi-line LCD alpha numeric display, audible alarm, rechargeable battery pack, built-in programmable data logger, three sensors (Carbon Dioxide, Temperature and Relative Humidity), carrying case and basic accessories.

The user can add up to two additional sensor modules (electrochemical toxic gas and/or Oxygen) internally for a maximum of five internal sensors. Currently, a selection of up to fourteen sensors is available to choose from. Reference the available sensor list further on in this manual.

2.0 SPECIFICATIONS

Physical:	a) Dimensions: 7" (178 mm) Wide X 8.4" (213 mm) High X 2.2" (56 mm) Deep
	b) Weight: 2.8 pounds (1.3 kg)
Construction:	Very rugged, powder painted aluminum with easily removed, vented cover
Power:	Internal: Rechargeable, lead acid battery pack Continuous: Plug-in, 24VDC wall adapter
Visual:	Back-lit, multi-line LCD alphanumeric display Tactile keypad for user access
Option:	Internal, automatic sample pump (for gas sensors only) Note: For best accuracy, not suggested to sample for reactive gases such as Chlorine, Chlorine Dioxide, Ozone or Ammonia

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-205 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-205, 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 5,000 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 - 5,000 ppm
Resolution:	1 ppm
Long Term Drift:	+/- 20 ppm
Response Time:	<60 seconds 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…..

CO SENSOR SPECIFICATIONS

Operating Principle:	Electrochemical
Gas sampling method:	Diffusion (standard) Sample Draw (option)
Measurement Range:	0 - 50 ppm (other ranges available)
Resolution:	0.3 ppm
Long Term Drift::	<2% / month in clean air
Response Time:	t_{90} = < 25 seconds
Warm Up Time @ 22° C	5 minute operational, 20 minute for maximum accuracy
Calibration Frequency:	6 months for best accuracy
Operating Temperature:	-20° to + 50° C
Operating Humidity:	15% to 90% continuous, non-condensing
Operating Life:	2 years
Cross Sensitivities:	H2 @ 400 ppm = < 50 ppm C2H4 @ 100 ppm = < 90 ppm Cl2 @ 5 ppm = < 2 ppm H2S / SO2 = 0

NO2 SENSOR SPECIFICATIONS

Operating Principle:	Electrochemical
Gas sampling method:	Diffusion (standard) Sample Draw (option)
Measurement Range:	0 - 5.0 ppm (other ranges available)
Resolution:	0.05 ppm
Long Term Drift::	<3% @ 3 months
Response Time:	t_{90} = < 25 seconds
Warm Up Time @ 22° C	5 minute operational, 20 minute for maximum accuracy
Calibration Frequency:	6 months for best accuracy
Operating Temperature:	-20° to + 50° C

2.0 SPECIFICATIONS, CONT'D…..

NO2 SENSOR SPECIFICATIONS, CONT'D…..

Operating Humidity:	15% to 90% continuous, non-condensing
Operating Life:	2 years
Cross Sensitivities:	SO2 @ 20 ppm = < 1 ppm
	H2S @ 20 ppm = -25 ppm
	CO / NO = 0
	H2 = 0

TEMPERATURE SENSOR SPECIFICAITONS

Operating Principle: Negative Temperature Co-efficient Thermistor

Gas sampling method:	Diffusion
Measurement Range:	0° C to + 50° C (32° to 122° F)
Resolution:	0.1
Long Term Drift::	+/- 0.5^o C
Warm Up Time @ 22° C	5 minute operational, 20 minute for maximum accuracy
Calibration Frequency:	1 year for best accuracy
Operating Temperature:	0° C to + 50° C (32° to 122° F)
Operating Life:	3 years plus

HUMIDITY SENSOR SPECIFICATIONS

Operating Principle:	Thin film capacitive
Gas sampling method:	Diffusion
Measurement Range:	0° C to + 50° C (32° to 122° F)
Resolution:	0.4% rH
Long Term Drift::	+/- 0.5^o C
Warm Up Time @ 22° C	5 minute operational, 20 minute for maximum accuracy
Calibration Frequency:	1 year for best accuracy
Operating Temperature:	0° C to + 50° C (32° to 122° F)
Operating Life:	3 years plus

2.0 SPECIFICATIONS, CONT'D…..

OXYGEN SENSOR SPECIFICATIONS

Operating Principle:	Electrochemical
Gas sampling method:	Diffusion (standard) Sample Draw (option)
Measurement Range:	0 - 25.0% Volume
Resolution:	0.2% Volume
Long Term Drift::	<3% @ 3 months
Response Time:	t_{90} = < 10 seconds
Warm Up Time @ 22° C	5 minute operational, 20 minute for maximum accuracy
Calibration Frequency:	6 months for best accuracy
Operating Temperature:	-20° to + 50° C
Operating Humidity:	5% to 95% continuous, non-condensing
Operating Life:	2 years
Cross Sensitivities:	CO_2 @ 5% Volume = 0.5% Volume

AMMONIA SENSOR SPECIFICATIONS

Operating Principle:	Electrochemical
Gas sampling method:	Diffusion (standard) Sample Draw (option)
Measurement Range:	0 - 100 ppm (other ranges available)
Resolution:	1 ppm
Long Term Drift::	<5% @ 6 months
Response Time:	t_{90} = < 60 seconds
Warm Up Time @ 22° C	5 minute operational, 20 minute for maximum accuracy
Calibration Frequency:	6 months for best accuracy
Operating Temperature:	-20° to + 40° C
Operating Humidity:	10% to 95% continuous, non-condensing
Operating Life:	2 years

2.0 SPECIFICATIONS, CONT'D…..

AMMONIA SENSOR SPECIFICATIONS, CONT'D…..

Cross Sensitivities: H2 @ 10 ppm = 0
                            CO @ 1000 ppm = 0
                            H2 @ 1000 ppm = 25 ppm

CHLORINE SENSOR SPECIFICATIONS

Operating Principle: Electrochemical

Gas sampling method: Diffusion (standard)
                            Sample Draw (option)

Measurement Range: 0 - 5.0 ppm

Resolution: 0.02 ppm

Long Term Drift::   <5% @ 6 months

Response Time: t_{90} = < 60 seconds

Warm Up Time @ 22° C   5 minute operational, 20 minute for maximum accuracy

Calibration Frequency: 6 months for best accuracy

Operating Temperature: -20° to + 40° C

Operating Humidity: 10% to 95% continuous, non-condensing

Operating Life: 2 years

Cross Sensitivities: H2S @ 10 ppm = -0.3 ppm
                            NO2 @ 10 ppm = 1.2 ppm
                            F2 @ 1.0 ppm = 0.44 ppm
                            CO @ 300 ppm = 3 ppm

CHLORINE DIOXIDE SENSOR SPECIFICATIONS

Operating Principle: Electrochemical

Gas sampling method: Diffusion (standard)
                            Sample Draw (option)

Measurement Range: 0 - 1.0 ppm

Resolution: 0.02 ppm

Long Term Drift::   <5% @ 6 months

2.0 SPECIFICATIONS, CONT'D…..

CHLORINE DIOXIDE SENSOR SPECIFICATIONS, CONT'D…..

Response Time: t_{90} = < 120 seconds

Warm Up Time @ 22° C   5 minute operational, 20 minute for maximum accuracy

Calibration Frequency: 6 months for best accuracy

Operating Temperature: -20° to + 40° C

Operating Humidity: 10% to 95% continuous, non-condensing

Operating Life: 2 years

Cross Sensitivities: O3 @ 0.1 ppm = -0.03 ppm
                          Cl2 @ 1 ppm = 0 dose <100 ppm min.
                          Phosphine @ 0.3 ppm = 0.3 ppm
                          Arsine @ 1 ppm = 0.8 ppm
                          CO @ 1000 ppm = 0
                          H2 @ 1% Volume = 0

FLOURINE SENSOR SPECIFICATIONS

Operating Principle: Electrochemical

Gas sampling method: Diffusion (standard)
                          Sample Draw (option)

Measurement Range: 0 - 1.0 ppm

Resolution: 0.02 ppm

Long Term Drift::   <5% per month

Response Time: t_{90} = < 80 seconds

Warm Up Time @ 22° C   5 minute operational, 20 minute for maximum accuracy

Calibration Frequency: 6 months for best accuracy

Operating Temperature: 0° to + 50° C

Operating Humidity: 15% to 90% continuous, non-condensing

Operating Life: 2 years

Cross Sensitivities: H2S @ 1 ppm = -1.5 ppm
                          Cl2 @ 1 ppm = 1.3 ppm
                          NO2 @ 1 ppm = 0.05 ppm
                          O3 @ 0.1 ppm = 0.2 ppm

2.0 SPECIFICATIONS, CONT'D…..

HYDROGEN SENSOR SPECIFICATIONS

Operating Principle: Electrochemical

Gas sampling method: Diffusion (standard)
                            Sample Draw (option)

Measurement Range: 0 - 4000 ppm

Resolution: < 20 ppm

Long Term Drift::   <10% @ 6 months

Response Time: t_{90} = < 60 seconds

Warm Up Time @ 22° C   5 minute operational, 20 minute for maximum accuracy

Calibration Frequency: 6 months for best accuracy

Operating Temperature: -40° to + 40° C

Operating Humidity: 5% to 90% continuous, non-condensing

Operating Life: 2 years

Cross Sensitivities: Ethylene @ 500 ppm = 280 ppm
                            Isopropanol @ 1100 ppm = 180 ppm
                            CO @ 50 ppm = 6 ppm
                            SO2 @ 2 ppm = 0
                            CH4 @ 1% LEL = 0

HYDROGEN CHLORINE SENSOR SPECIFICATIONS

Operating Principle: Electrochemical

Gas sampling method: Diffusion (standard)
                            Sample Draw (option)

Measurement Range: 0 - 30 ppm

Resolution: 0.5 ppm

Long Term Drift::   <3% / months

Response Time: t_{90} = < 70 seconds

Warm Up Time @ 22° C   5- minute operational, 20 minute for maximum accuracy

Calibration Frequency: 6 months for best accuracy

Operating Temperature: -20° to + 40° C

2.0 SPECIFICATIONS, CONT'D…..

HYDROGEN SENSOR SPECIFICATIONS

Operating Humidity: 10% to 95% continuous, non-condensing

Operating Life: 2 years

Cross Sensitivities: H2S @ 10 ppm = 2.75 ppm
                             SO2 @ 5 ppm = 2.5 ppm
                             Cl2 @ 5 ppm = 1 ppm
                             HCN @ 15 ppm = 1
                             H2 @ 1% LEL = 0

HYDROGEN CYANIDE SENSOR SPECIFICATIONS

Operating Principle: Electrochemical

Gas sampling method: Diffusion (standard)
                             Sample Draw (option)

Measurement Range: 0 - 30 ppm

Resolution: 0.3 ppm

Long Term Drift::   <5% / months

Response Time: t_{90} = < 40 seconds

Warm Up Time @ 22° C   5 minute operational, 20 minute for maximum accuracy

Calibration Frequency: 6 months for best accuracy

Operating Temperature: -40° to $+ 40^o$ C

Operating Humidity: 5% to 95% continuous, non-condensing

Operating Life: 1.5 years in air

Cross Sensitivities: NO2 @ 10 ppm = -12 ppm
                             Cl2 @ 5 ppm = -1 ppm
                             H2S @ 10 ppm = 0
                             SO2 @ 2 ppm = 0

2.0 SPECIFICATIONS, CONT'D…..

HYDROGEN SULPHIDE SENSOR SPECIFICATIONS

Operating Principle:	Electrochemical
Gas sampling method:	Diffusion (standard) Sample Draw (option)
Measurement Range:	0 - 50 ppm
Resolution:	0.05 ppm
Long Term Drift::	<2% / month
Response Time:	t_{90} = < 20 seconds
Warm Up Time @ 22° C	5 minute operational, 20 minute for maximum accuracy
Calibration Frequency:	6 months for best accuracy
Operating Temperature:	-40° to + 50° C
Operating Humidity:	15% to 90% continuous, non-condensing
Operating Life:	1.5 years in air
Cross Sensitivities:	SO2 @ 20 ppm = <20 ppm C0 @ 400 ppm = <0.05 ppm H2 @ 400 ppm = 0

NITRIC OXIDE SENSOR SPECIFICATIONS

Operating Principle:	Electrochemical
Gas sampling method:	Diffusion (standard) Sample Draw (option)
Measurement Range:	0 - 100 ppm
Resolution:	0.1ppm
Long Term Drift::	<2% / month
Response Time:	t_{90} = < 10 seconds
Warm Up Time @ 22° C	5 minute operational, 20 minute for maximum accuracy
Calibration Frequency:	6 months for best accuracy
Operating Temperature:	-5° to + 40° C
Operating Humidity:	20% to 90% continuous, non-condensing

2.0 SPECIFICATIONS, CONT'D…..

NITRIC OXIDE SENSOR SPECIFICATIONS, CONT'D…..

Operating Life:	2 years in air
Cross Sensitivities:	NO2 @ 100 ppm = <0.01 ppm H2S @ 10 ppm = 0 SO2 @ 50 ppm = 0 CO @ 1000 ppm = 0

OZONE SENSOR SPECIFICATIONS

Operating Principle:	Electrochemical
Gas sampling method:	Diffusion (standard) Sample Draw (option)
Measurement Range:	0 - 1.00 ppm
Resolution:	0.02 ppm
Long Term Drift::	<5% / month
Response Time:	t_{90} = < 60 seconds
Warm Up Time @ 22° C	5 minute operational, 20 minute for maximum accuracy
Calibration Frequency:	6 months for best accuracy
Operating Temperature:	-10° to + 40° C
Operating Humidity:	10% to 95% continuous, non-condensing
Operating Life:	1.5 years in air
Cross Sensitivities:	H2S @ 1 ppm = <0.015 ppm H2 @ 1% LEL = 0.003 ppm Cl2 @ 1 ppm = 1.4 ppm +/- 50% NO2 @ 1 ppm = 0.70 ppm ClO2 @ 0.1 ppm = 0.12 ppm

2.0 SPECIFICATIONS, CONT'D…..
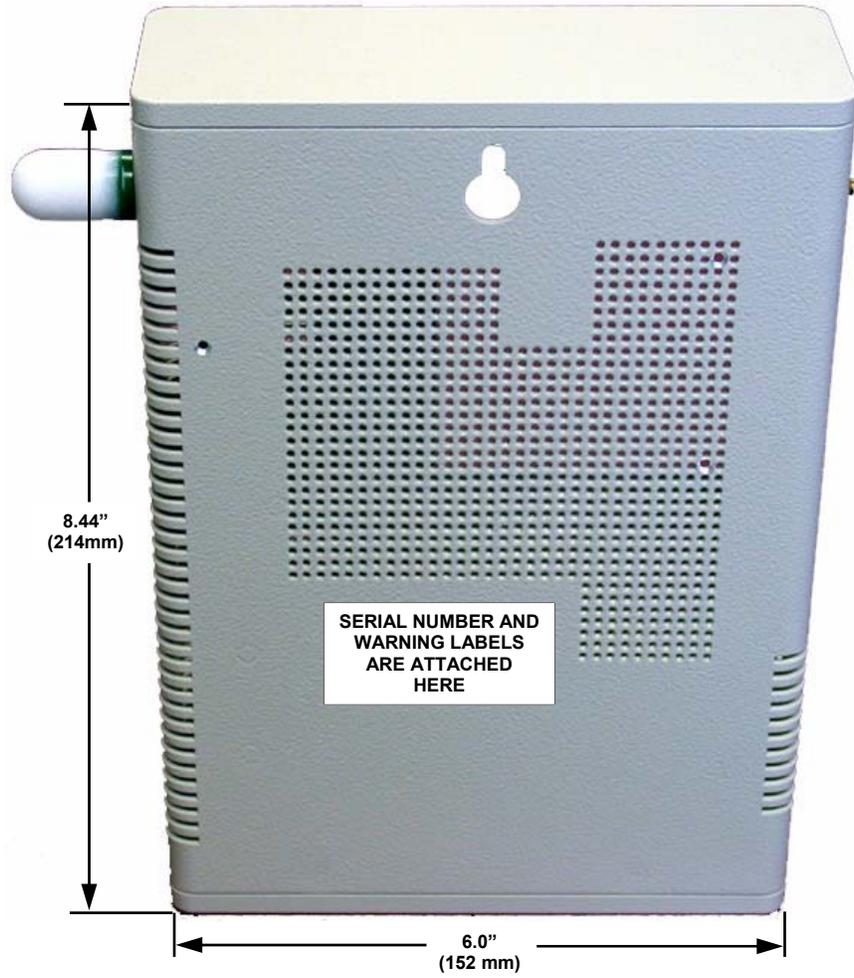
SULPHUR DIOXIDE SENSOR SPECIFICATIONS

Operating Principle: Electrochemical

Gas sampling method: Diffusion (standard)
                            Sample Draw (option)

Measurement Range: 0 - 20 ppm

Resolution: 0.1 ppm

Long Term Drift::   <2% / month

Response Time: t_{90} = < 25 seconds

Warm Up Time @ 22° C   5 minute operational, 20 minute for maximum accuracy

Calibration Frequency: 6 months for best accuracy

Operating Temperature: -30° to $+ 40^o$ C

Operating Humidity: 15% to 95% continuous, non-condensing

Operating Life: 2 years in air

Cross Sensitivities: H2S @ 20 ppm = 0.1 ppm
                            H2 @ 400 ppm = 0.2 ppm
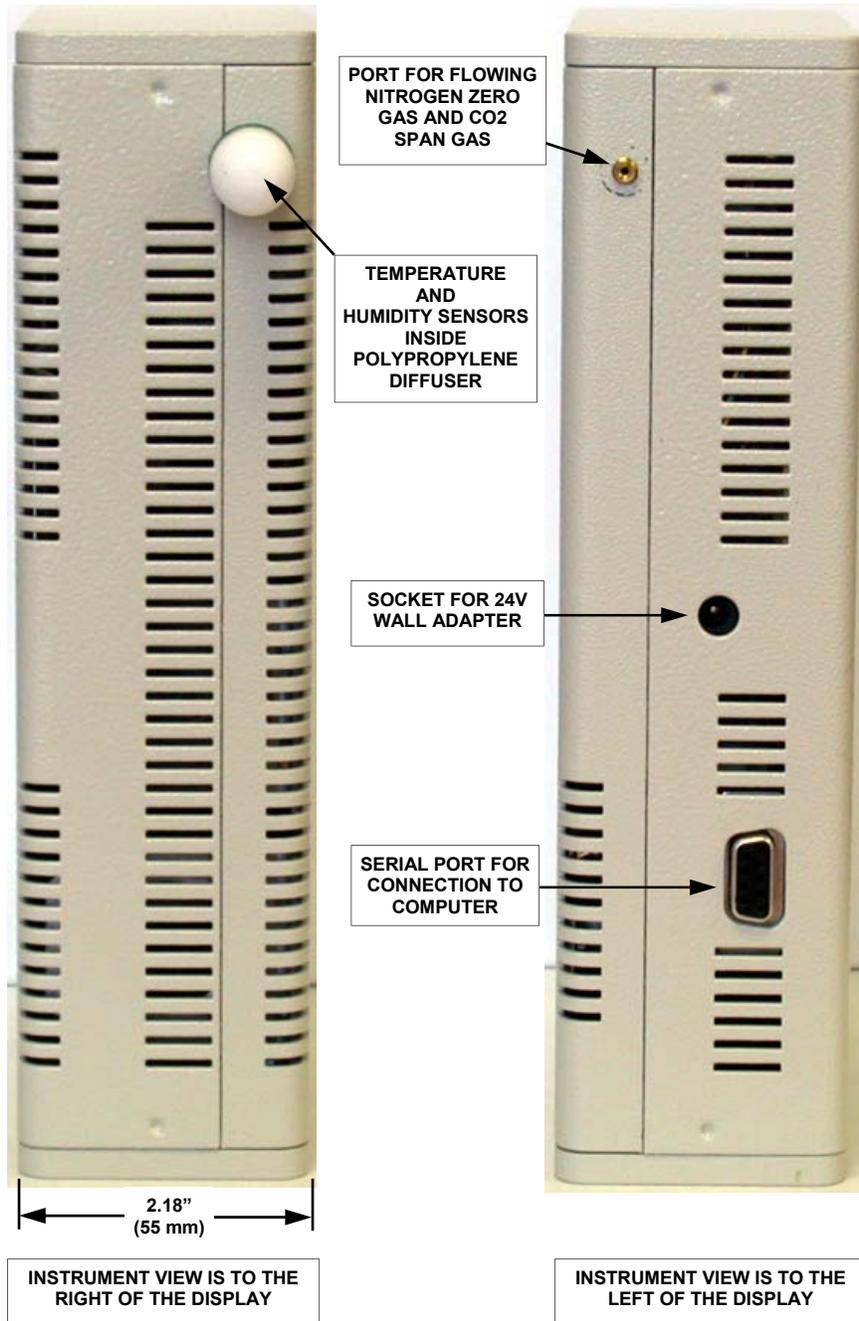   CO @ 400 ppm = 0
                            NO @ 0 50 ppm = 0

3.0 INSTRUMENT EXTERIOR PHOTOGRAPH

YOUNG ENVIRONMENTAL SYSTEMS INC.

YES-205
AIR
QUALITY
MONITOR

ON/OFF MENU ACCEPT

ENCLOSURE VENTS ALLOWING AIR AND TARGET GASES TO DIFFUSE TO INTERNAL SENSORS

LEXAN LABEL WITH PROGRAMMING KEYPAD

MULTI-LINE LCD ALPHANUMERIC DISPLAY

TEMPERATURE AND HUMIDITY SENSORS INSIDE POLYPROPYLENE DIFFUSER

RUGGED, ATTRACTIVE, POWDER PAINTED, ALUMINUM INSTRUMENT ENCLOSURE

3.1 INSTRUMENT BACK PANEL PHOTOGRAPH

8.44"
(214mm)

SERIAL NUMBER AND
WARNING LABELS
ARE ATTACHED
HERE

6.0"
(152 mm)

3.2 INSTRUMENT SIDE PANEL PHOTOGRAPHS

PORT FOR FLOWING NITROGEN ZERO GAS AND CO2 SPAN GAS

TEMPERATURE AND HUMIDITY SENSORS INSIDE POLYPROPYLENE DIFFUSER

SOCKET FOR 24V WALL ADAPTER

SERIAL PORT FOR CONNECTION TO COMPUTER

2.18"
(55 mm)

INSTRUMENT VIEW IS TO THE RIGHT OF THE DISPLAY

INSTRUMENT VIEW IS TO THE LEFT OF THE DISPLAY

3.3 INSTRUMENT INTERIOR PHOTOGRAPHS

TOXIC SENSOR MODULES IN THE MOUNTING BRACKETS

INFRARED CO2 SENSOR

RECHARGABLE LEAD ACID BATTERY PACK
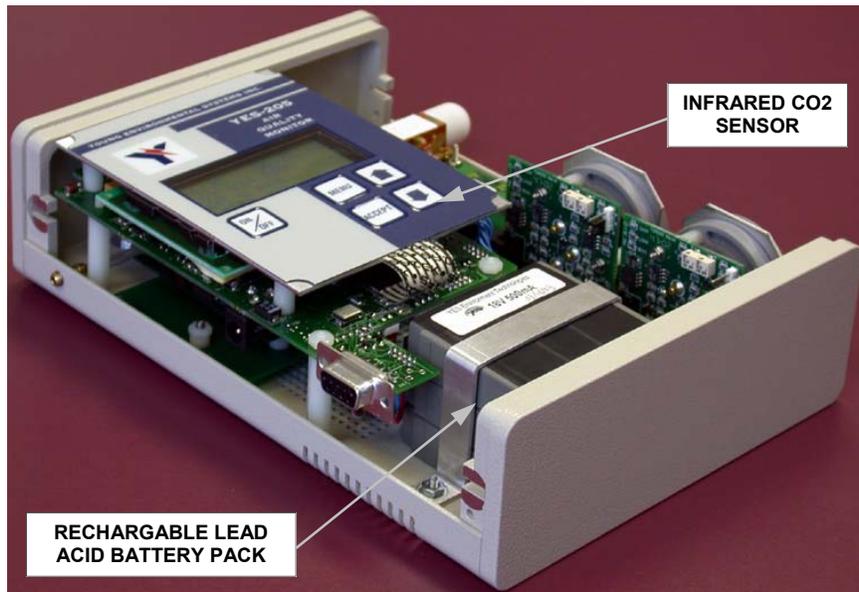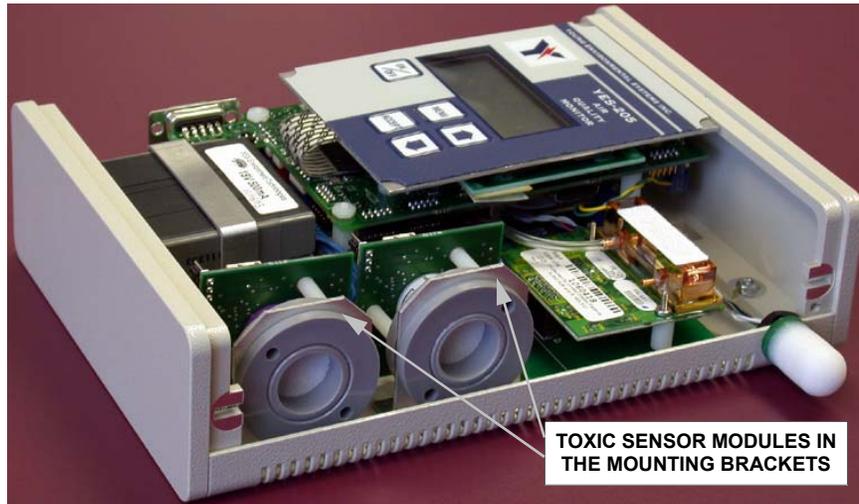
4.0 DISPLAY

Temperature and relative humidity are displayed on the upper most line of the LCD display module. Carbon Doxide is displayed on the second line down in "ppm", to a maximum of 5,000 ppm. Other toxic gases are displayed on the third and fourth line down, if these options have been purchased.

The display can be temporarily turned off by pressing both arrow keys simultaneously for approximately 3 seconds, without interrupting the data acquisition process. The display can be reactivated by once again pressing both arrow keys simultaneously for approximately 3 seconds. The microprocessor indicator continues to flash in this mode.

The microprocessor indicator (cursor at bottom right corner of display) shows that the instrument is successfully processing information. The square should blink approximately every 2 seconds. If the square remains constant and does not blink, it means the instrument is "locked up". Turn the instrument off and back on again to reset the microprocessor.

If the instrument purchased has one extra toxic gas sensor besides Carbon Dioxide, the graphic bar along the bottom edge of the display indicates remaining power left. A small arrow will indicate if the unit is powered by the internal battery (arrow pointing to the left) or the external AC adapter (arrow pointing to the right).

If the instrument purchased has two extra toxic gas sensors besides Carbon Dioxide, a single arrow in the top right corner of the display, pointing to the right Indicates the 24V AC adapter is powering the instrument. An arrow pointing to the left, followed by a single digit number (9=full charge, 0=flat battery) indicates the unit powered by the internal battery. Refer to the photo below.

BACK-LIT, ALPHANUMERIC LCD DISPLAY

BATTERY - CURSOR
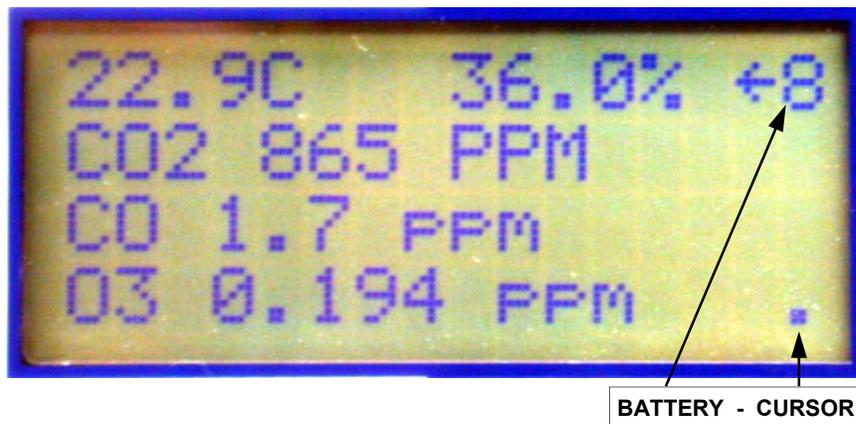
4.1 KEYPAD

ON / OFF KEY

This key switches the instrument on and off. Hold the key in for approximately one second.

MENU KEY

This is the main key for navigating through the internal menu structure.

ACCEPT KEY

This keys allow the user to enter the various menu branches and also enter parameters into memory.

ARROW KEYS

These keys allow the user to toggle through the different settings of parameters and to select different options within the menus.

KEYPAD

4.2 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 22).

4.3 POWER JACK

This allows the user to plug in the supplied 24V 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 10 hours, assuming you are starting with a fully charged battery. (Reference photos on page 22).

Note-1: In order for the main battery to be properly recharged, the YES-205 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.
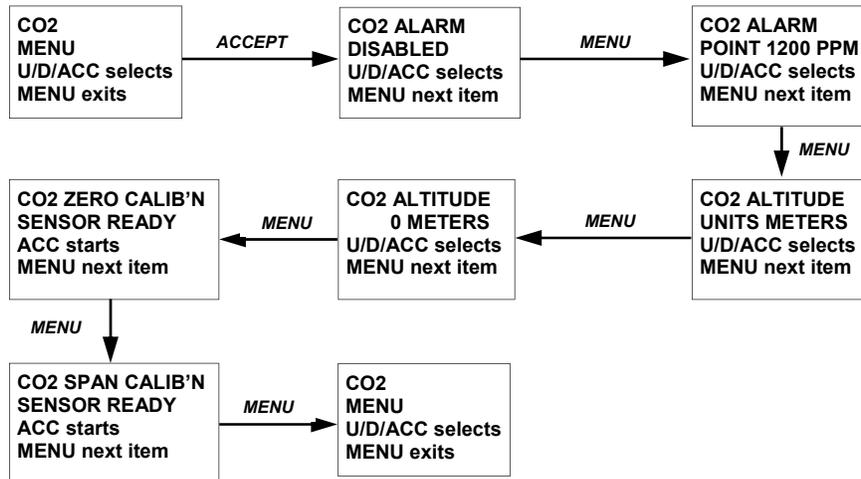
5.0 SYSTEM FLOW CHARTS

MAIN MENUS
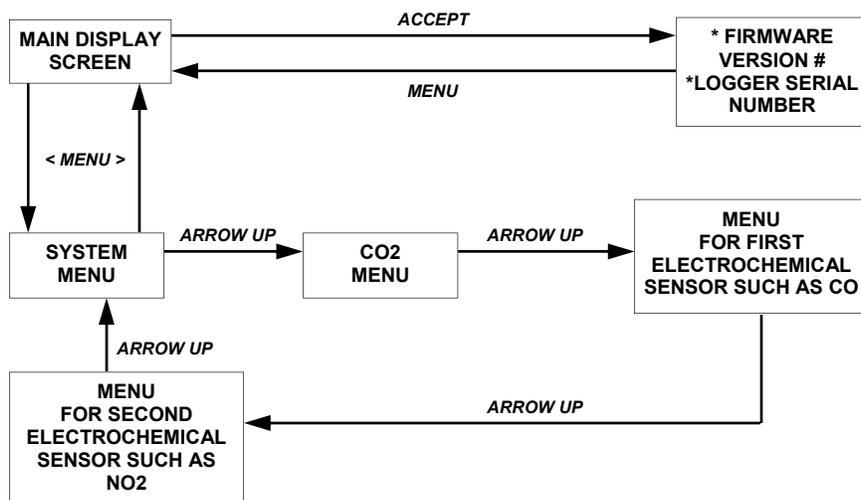
After switch on, pressing the "**ACCEPT**" key displays the firmware version and logger serial number. Pressing the "**ACCEPT**" key again will reset all the minimum and maximum recorded values. Pressing the "**MENU**" key takes the user back to the main display screen.

Pressing the "**MENU**" key from the main display screen enters the system menu screen. Pressing "▲" key allows the user to scroll up through the gas sensor menus and eventually back to the system menu screen. Pressing the "▼" key scrolls the user through the gas menus from the opposite direction.
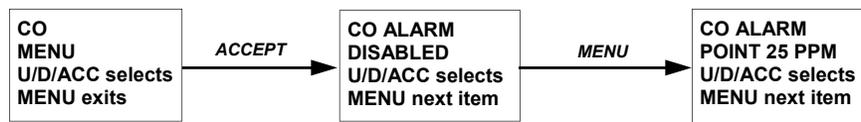
5.0 SYSTEM FLOW CHARTS, CONT'D…..

CO2 MENU

```
┌─────────────────┐          ┌─────────────────┐          ┌─────────────────┐
│ CO2             │ ACCEPT   │ CO2 ALARM       │ MENU     │ CO2 ALARM       │
│ MENU            │ ───────► │ DISABLED        │ ───────► │ POINT 1200 PPM  │
│ U/D/ACC selects │          │ U/D/ACC selects │          │ U/D/ACC selects │
│ MENU exits      │          │ MENU next item  │          │ MENU next item  │
└─────────────────┘          └─────────────────┘          └─────────────────┘
                                                                    │ MENU
                                                                    ▼
┌─────────────────┐          ┌─────────────────┐          ┌─────────────────┐
│ CO2 ZERO CALIB'N│ MENU     │ CO2 ALTITUDE    │ MENU     │ CO2 ALTITUDE    │
│ SENSOR READY    │ ◄─────── │     0 METERS    │ ◄─────── │ UNITS METERS    │
│ ACC starts      │          │ U/D/ACC selects │          │ U/D/ACC selects │
│ MENU next item  │          │ MENU next item  │          │ MENU next item  │
└─────────────────┘          └─────────────────┘          └─────────────────┘
        │ MENU
        ▼
┌─────────────────┐          ┌─────────────────┐
│ CO2 SPAN CALIB'N│ MENU     │ CO2             │
│ SENSOR READY    │ ───────► │ MENU            │
│ ACC starts      │          │ U/D/ACC selects │
│ MENU next item  │          │ MENU exits      │
└─────────────────┘          └─────────────────┘
```

Pressing "**ACCEPT**" while in the CO2 menu takes the user to the CO2 alarm screen (enable / disable). Pressing "**MENU**" at this point takes the user to the CO2 alarm screen (adjust the alarm set point up or down). Pressing "MENU" repeatedly scrolls the user through the various CO2 menus indicated above.
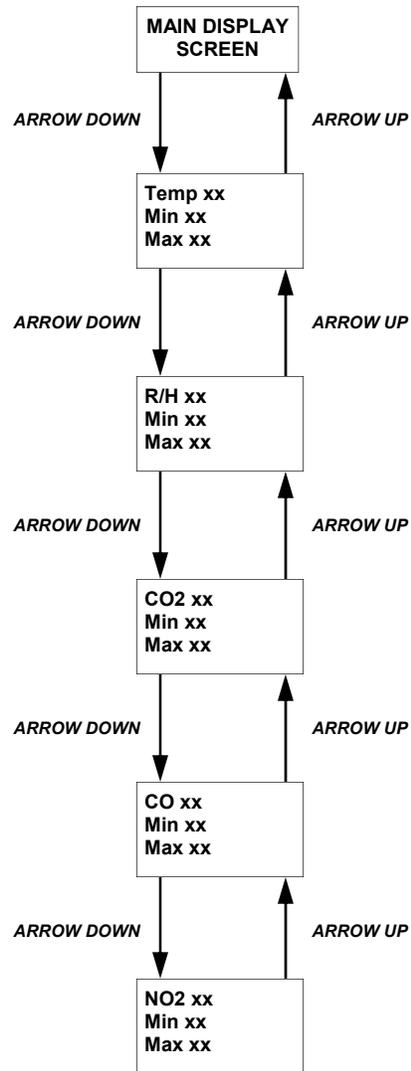
CO MENU

```
┌─────────────────┐          ┌─────────────────┐          ┌─────────────────┐
│ CO              │ ACCEPT   │ CO ALARM        │ MENU     │ CO ALARM        │
│ MENU            │ ───────► │ DISABLED        │ ───────► │ POINT 25 PPM    │
│ U/D/ACC selects │          │ U/D/ACC selects │          │ U/D/ACC selects │
│ MENU exits      │          │ MENU next item  │          │ MENU next item  │
└─────────────────┘          └─────────────────┘          └─────────────────┘
```

Pressing "**ACCEPT**" while in the CO menu takes the user to the CO alarm screen (enable / disable). Pressing "**MENU**" at this point takes the user to the CO2 alarm screen (adjust the alarm set point up or down). Pressing "MENU" repeatedly scrolls the user through the various CO2 menus indicated above.

5.0 SYSTEM FLOW CHARTS, CONT'D…..

SYSTEM MENU

```
                    ┌─────────────────┐
                    │  MAIN DISPLAY   │
                    │     SCREEN      │
                    └─────────────────┘
   ARROW DOWN   │                    ▲   ARROW UP
               ▼                    │
                    ┌─────────────────┐
                    │ Temp xx         │
                    │ Min xx          │
                    │ Max xx          │
                    └─────────────────┘
   ARROW DOWN   │                    ▲   ARROW UP
               ▼                    │
                    ┌─────────────────┐
                    │ R/H xx          │
                    │ Min xx          │
                    │ Max xx          │
                    └─────────────────┘
   ARROW DOWN   │                    ▲   ARROW UP
               ▼                    │
                    ┌─────────────────┐
                    │ CO2 xx          │
                    │ Min xx          │
                    │ Max xx          │
                    └─────────────────┘
   ARROW DOWN   │                    ▲   ARROW UP
               ▼                    │
                    ┌─────────────────┐
                    │ CO xx           │
                    │ Min xx          │
                    │ Max xx          │
                    └─────────────────┘
   ARROW DOWN   │                    ▲   ARROW UP
               ▼                    │
                    ┌─────────────────┐
                    │ NO2 xx          │
                    │ Min xx          │
                    │ Max xx          │
                    └─────────────────┘
```

6.0 INSTRUMENT OPERATION

Press and hold the "**ON/OFF**" push-button on the front of the instrument, for approximately one second, to switch it on. The instrument "beeps" and the display will indicate **"YES-205 INITIALIZING"**. The display will indicate all installed sensors and their current values. Although the instrument immediately displays values for all installed sensors, allow the instrument to warm up for approximately 20 minutes for maximum accuracy. CO2 and all other toxic sensors will be displayed as "ppm" (parts per million). Temperature will be displayed as "C. or F." (degrees C or F) depending which was selected and the humidity will be displayed as "%" (percent Relative Humidity).

Pressing the "**ACCEPT**" button will display the version of the firmware installed, the serial number of the data logger installed and offer the user the option to "set min/max" (reset minimum and maximum) readings for all sensors. Pressing "**ACCEPT**" once more resets all the "min" and "max" readings. Resetting the "min / max" readings prepares the instrument for a new sampling period in terms of recorded minimum and maximum readings. Alternatively, pressing "**MENU**" exits this menu and takes you back to the normal sensor display screen.

Pressing the "▲" arrow push-button allows the user to scroll through and display the "Min" and "Max" menus for all installed sensors. The display will first indicate "TEMPERATURE" and display the current, minimum and maximum readings. Pressing the up arrow again takes you to the next sensor installed "REL HUMIDITY". Pressing the up arrow again takes you to "CO2". Subsequent pressing of the up arrow button takes you to any additional installed toxic sensors such as "CO", "NO2", etc.

Pressing the "**MENU**" button allows the user to scroll through the available menu functions. Pressing menu again exits this menu and takes you back to the normal sensor display screen. The display indicates "U/D/ACC selects", "MENU exits". Pressing "▲" (up arrow button) scrolls the user through the various menus available. Pressing "▼" (down arrow button) does the same but in the reverse direction. Pressing "**ACCEPT**" allows the user to accept the displayed choice and enter that specific menu.
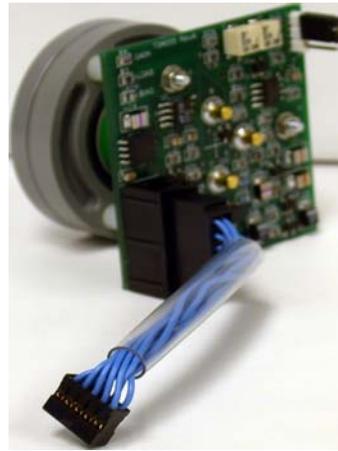
6.1 SENSOR MODULES

The YES-205 series instruments are packaged with one internal infrared CO_2 sensor and one externally mounted temperature and humidity sensor. They can also be packaged with one <u>or</u> two additional, internally mounted electrochemical sensors for toxic gas detection. There are fourteen different sensors to choose from. The sensors are supplied installed internally at the time of order or as add-on (plug-in) devices.

Depending on when the instrument was manufactured, it may contain "A" or "B" series sensor modules or possibly even one of each. An "A" series sensor module is distinguishable by a round circuit board. A "B" series sensor module is distinguishable by a square circuit board. Both sensor modules plug-in the same and calibrate the same.
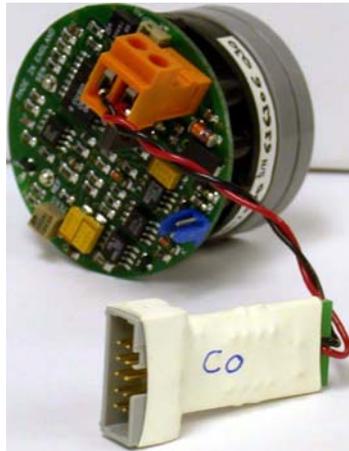
"A" SERIES SENSOR MODULE   **"B" SERIES SENSOR MODULE**

NOTE-1: INSTRUMENT MUST BE SWITCHED OFF BEFORE ATTEMPTING TO ADD OR REMOVE A SENSOR MODULE. UPON SWITCH ON IT WILL RECOGNIZE THE NEWLY INSTALLED SENSOR MODULE AND DISPLAY THE GAS TYPE AND CURRENT SENSOR READING. FOLLOW <u>ALL</u> THE INSTRUCTIONS ON THE NEXT PAGE.

NOTE-2: THE "A" SERIES SENSOR MODULES ARE SHOWN ABOVE ONLY FOR REFERENCE PURPOSES. OVER TIME, THEY ARE SLOWLY BEING REPLACED WITH THE NEWER "B" SERIES SENSOR MODULES.

SENSOR CONNECTIONS TABLE

<u>SENSOR TYPE</u>   <u>CONNECTION POINT ON MAIN BOARD</u>

SENSOR TYPE	CONNECTION POINT ON MAIN BOARD
CO2	P8
TOXIC SENSOR-4	P5
TOXIC SENSOR-5	P9

6.1 SENSOR MODULES, CONT'D.....

To field install a sensor module, follow these steps:

1) Switch off the instrument and remove the front metal instrument cover. Refer to figure-1 photo.

2) Locate the two, blue, pre-installed, sensor module cables. One is marked "4" and one is marked "5", representing sensor number 4 and 5. Refer to figure-2 photo.

3) Grasp the sensor module by the edges of the circuit board to avoid interfering with the circuit and potential damage and plug the sensor cable into it. These cables are keyed and insert only one way. Refer to figure-3 photo.

4) Remove the gray plastic securing nut. Gently insert the sensor module through the opening in one of the two aluminum mounting brackets and thread on the gray plastic nut. *Align the module so the zero and span potentiometers are facing upwards for easier service access.* Do not over tighten the nut. Refer to figure-4 photo. Typically if only one extra sensor is required, it is installed in the upper bracket position.

5) Switch on the instrument, while pressing the "**ACCEPT**" key. Keep holding the "**ACCEPT**" key until 3 beeps and "**LOGGER CONFIG UPDATED**" message appears. Release the "**ACCEPT**" key. The instrument will recognize and display the gas type and current reading. Allow a warm up time of approximately 20 minutes for best accuracy in readings.

TO REMOVE COVER, INSERT SMALL, FLAT BLADE SCREWDRIVER HERE AND GENTLY PRY OUTWARD

FIGURE-1

4

5

PLUG-N-PLAY
CABLES FOR:
SENSOR-4
SENSOR-5
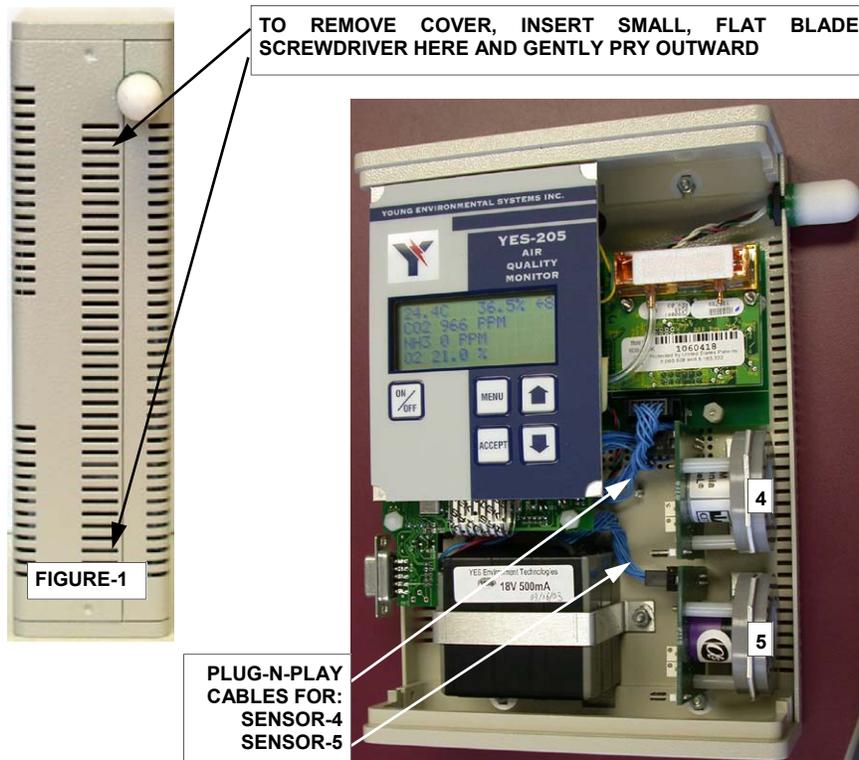
FIGURE-2

6.1 SENSOR MODULES, CONT'D…..

FIGURE-3

FIGURE-4

32
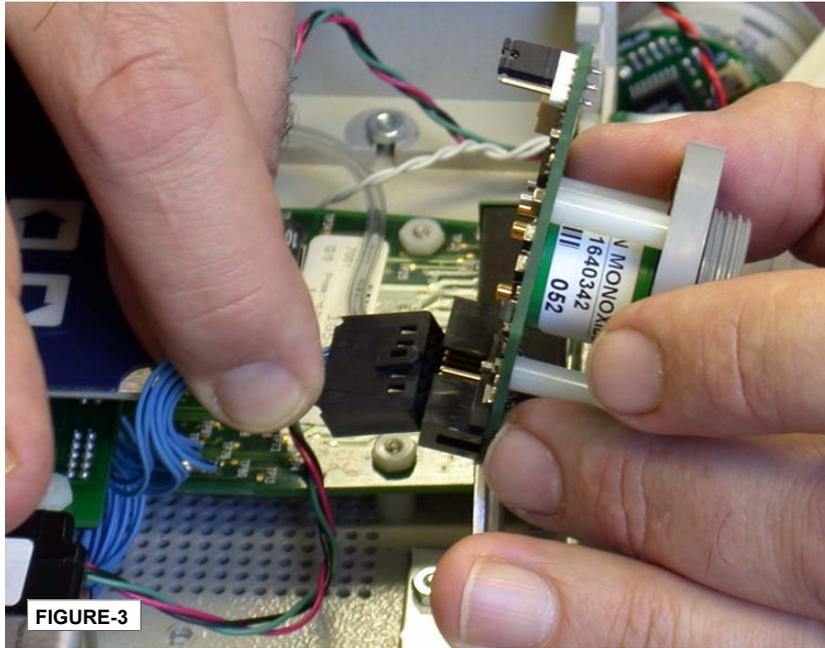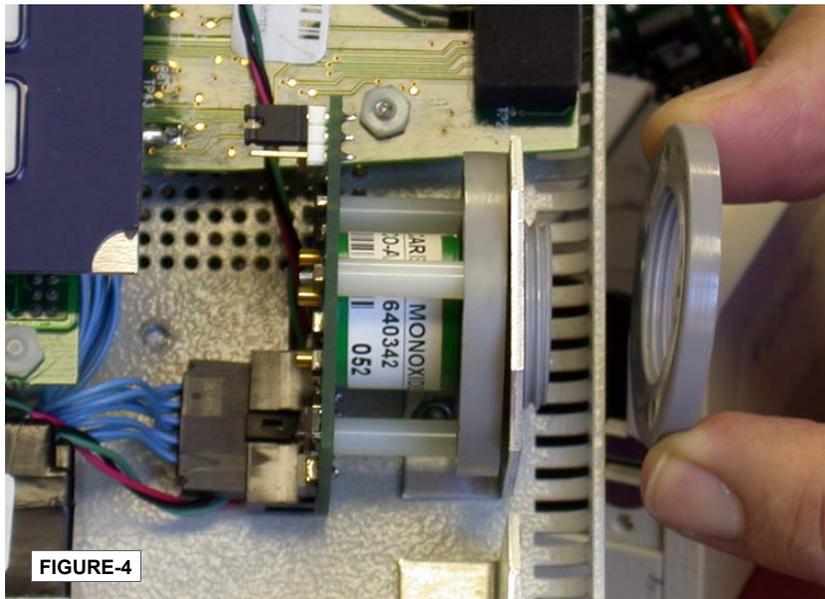
7.0 CALIBRATION

The sensors utilized in the YES-205 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 (SENSOR # 3)

Equipment required:

- Zero gas - Nitrogen (N2) @ 99.9% Volume
- CO2 span gas (Approx. 2000 ppm suggested) with balance N2
- Calibration hose and fitting (supplied)
- Cylinder regulator with pressure gauge and fixed flow rate of 0.2 LPM

Note: A standard YES calibration kit is recommended

Zero Calibration Procedure:

1. Connect the brass fitting with hose attached to the threaded gas inlet port, located on the top left side of the instrument (with display facing you). Reference the photo on page 22.

2. Thread the cylinder regulator onto the cylinder of Nitrogen and attach the calibration hose and fitting to the regulator.

3. From the main system screen, press the "**MENU**" key once to enter the system menu. By pressing the up/down arrow key, locate the CO2 menu option and press the "**ACCEPT**" key.

4. Scroll through the CO2 menu by pressing the "**MENU**" key. Once you see the CO2 zero calibration menu, press the "**ACCEPT**" key.

5. Open the regulator valve and flow zero gas (N2) at 0.2 LPM.

6. Press the "**ACCEPT**" key, this will bring you to the zero initiation calibration screen. This screen will display the current CO2 zero ppm reading. Please wait until CO2 reading has stabilized (value not jumping by more than 1 to 3 ppm).

7. Press the "**ACCEPT**" key to begin the zero calibration.

8. At this point, you should be in the "CO2 zero calibration in progress" screen. The counter will begin to count down from 3:12. Please wait for the timer to elapse to 0:00 and "**COMPLETE**" is shown on the screen. Close the cylinder regulator on/off valve.

7.0 CALIBRATION, CONT'D…..

9. Zero calibration is now complete, press the "**MENU**" key to enter the span calibration screen.

Span Calibration Procedure:

1. Remove the cylinder regulator from the N2 zero gas cylinder and thread it onto the cylinder of CO_2 span gas.

2. From the span calibration menu, press the "**ACCEPT**" key.

3. By pressing the up/down arrow keys, enter the ppm (Approx. 2000) concentration of the cylinder of CO_2 span gas that you are using.

4. Once the ppm value has been entered, open the cylinder regulator and flow span gas (CO_2).

5. Press the "**ACCEPT**" key. Please allow the CO_2 reading to stabilize (value not jumping by more than 1 to 3 ppm).

6. Press the "**ACCEPT**" key to begin the span calibration.

7. At this point, you should be in the "CO_2 span calibration in progress" screen. The counter will begin to count down from 3:12. Please wait for the timer to elapse to 0:00 and "**COMPLETE**" is shown on the screen. Close the cylinder regulator on/off valve and remove the cylinder and brass fitting with hose attached.

8. Once "**COMPLETE**" is displayed on the screen, press the "**MENU**" key twice to exit back to the main sensor display screen. The CO_2 sensor is now calibrated. Remove the regulator from the cylinder for storage and remove the brass fitting.

SENSOR NUMBER FOUR AND FIVE (ELECTROCHEMICAL TOXIC GAS SENSOR):

Equipment required:

- Zero air - Normal air with contaminates scrubbed out
- Span gas (CO eg: 50 ppm suggested) with balance air
- Calibration hose and fitting (supplied)
- Cylinder regulator with pressure gauge and fixed flow rate of 0.2 LPM

To calibrate this sensor, the front metal cover of the YES-205 must first be removed. To do this, insert a small flat blade screwdriver into one of the ventilation slots near the top or bottom edge of the cover and gently pry upward. Once the cover has been removed, the fourth and fifth sensor locations will be visible. Reference photo on page 31.

7.0 CALIBRATION, CONT'D…..

The fourth and fifth toxic gas sensors are calibrated to the LCD display of the YES-205.

1. Connect the brass fitting with gray coloured calibration adaptor attached, to the brass fitting on the end of the calibration hose.

2. Thread the cylinder regulator onto the cylinder of zero air and attach the calibration hose and fitting to the regulator.

3. Gently insert the gray calibration adapter into the opening in the front of the first sensor module. Moisten the o'ring if it seems hard to insert.

4. Open the on/off valve of the cylinder regulator and flow zero air over the sensor for approximately 1.5 to 2 minutes. The display should indicate "0". If it does not, then adjust the "zero" potentiometer on the tiny circuit board of the fourth sensor until the display reads "0".

5. Close the regulator on/off valve and remove the cylinder of zero air. Attach the cylinder of calibration span gas (eg. CO at 25 ppm). Open the regulator on/off valve and flow span gas over the sensor for approximately 2 to 3 minutes or until the displayed value for that sensor has stabilized.

6. Adjust the "span" potentiometer on the tiny circuit board of the fourth sensor until the display reads the same value as the span gas being flowed.

7. Remove the regulator from the cylinder for storage and remove the calibration adapter.

Note: Sensor number five (electrochemical toxic gas sensor) calibrates in exactly the same manner as indicated above. Use the calibration span gas cylinder acquired for this sensor.

8.0 DATA LOGGER OPERATION

INTRODUCTION

All YES-205 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-205 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 Auto run CD ROM, supplied with your instrument, into your CD ROM drive.

3) For manual installation explore the CD and execute the file "**tsf1p31a**". The Trend Reader screen will appear. Click "ok" to continue, than follow the instructions on the screen. Once the installation is complete, move to the next step.

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, version-1.31a
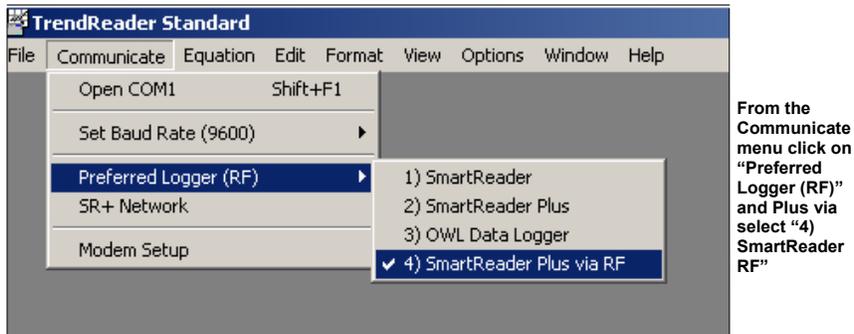
8.0 DATA LOGGER OPERATION, CONT'D…..

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 Plus via select "4) SmartReader RF"

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".

8.0 DATA LOGGER OPERATION, CONT'D…..

CONNECTING THE YES-205 TO THE PC

Ensure the YES-205 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 does not have a free 9-pin COM port, you can use a 9-25 pin gender changing adapter (available at most computer stores). At this point, switch on the YES-205 and allow it to initialize.

To establish communication with YES-205, either click on the available COM port icon on bottom left corner of screen or select "**COMMUNICATE**" tab from tool bar and click on "**OPEN COM ?"**
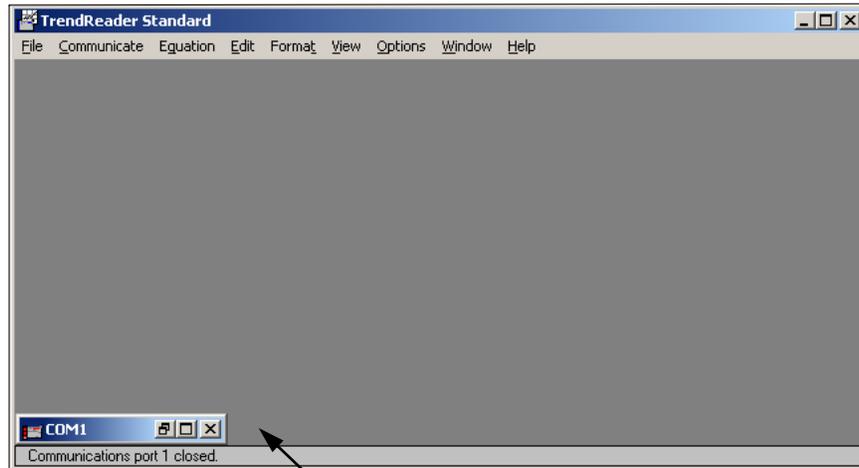
NOTE: THERE WILL BE MORE COM PORT TABS ON THE SCREEN IF AVAILABLE IN YOUR PC.

Once you click on **"OPEN COM",** the software will start scanning the port for a connected YES-205.

8.0 DATA LOGGER OPERATION, CONT'D…..

CONNECTING THE YES-205 TO THE PC, CONT'D…..

While the *TrendReader* software is attempting to establish communication with the instrument, the YES-205 LCD display will indicate **"REMOTE HOST MODE"**.

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

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 PROCEDING

SmartReader Plus

Serial Number: 57172   Filename: 9:56:54 AM   COM1   Contact

Graph Title: SN57172

Back Up | Edit Setup | Clear Stored Data | Close

Sample Rate: 120 sec.   Start Delay: 0 sec.   Number of Readings: 87000

Firmware 2.1

Mode
- [ ] Stop When Full
- [ ] Fast Read
- [ ] Alarm Dialout

Data Stored: 2 days, 23 hours, 34 minutes.   Realtime Mode

#	ON	Channel	Eqn #	Low	Mid	High	Ext	Realtime
0	YES	TEMP	45	0	1.992	0	0	23.06 °C
1	YES	RH	178	4.961	4.961	4.961	0	41.88 %
2	YES	CO2	184	0	2.383	0	0	625 PPM
3	NO	<NoName3>	18	0	3.398	0	0	Inactive
4	NO	<NoName4>	18	0	2.5	0	0	Inactive

SETTING SAMPLE INTERVALS

The software allows you to change sample rates on your YES-205 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-205, Click on "**Sample Rate**" and select desired sample rate. **Note**: Ensure that you are in "**Edit Setup**" mode before doing this. After every change please make sure to save setup.
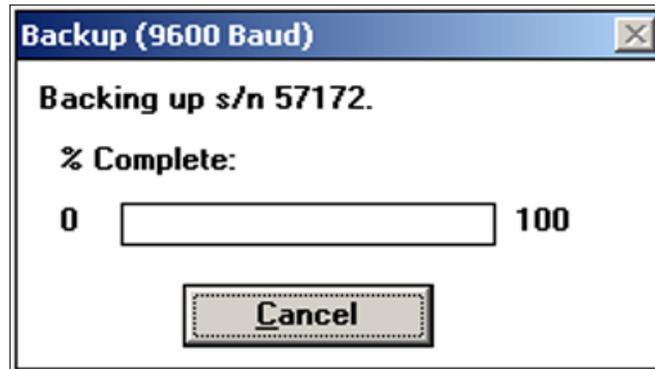
Click on Fast Read.   : 0.6 seconds

Minimum Sample Interval: 8 seconds
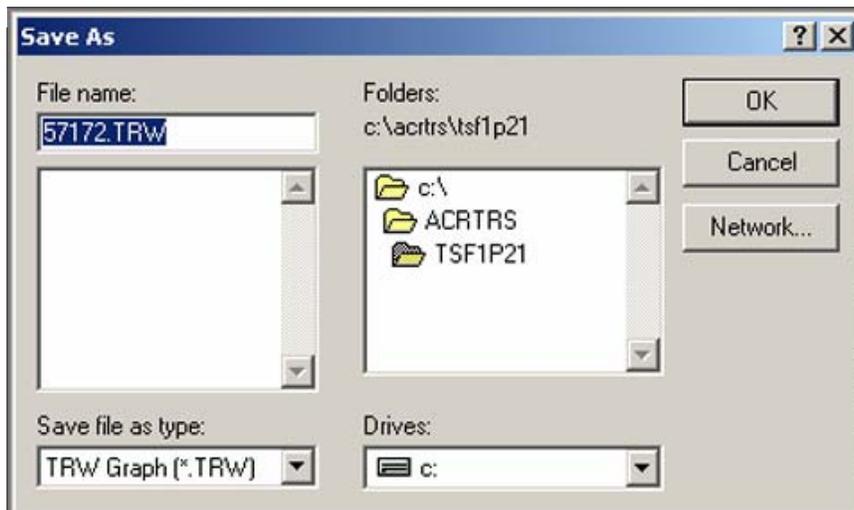
Maximum Sample Interval: 8 hours

8.0 DATA LOGGER OPERATION, CONT'D…..

DATA TRANSFER

To transfer logged data from the YES-205 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.

8.0 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.
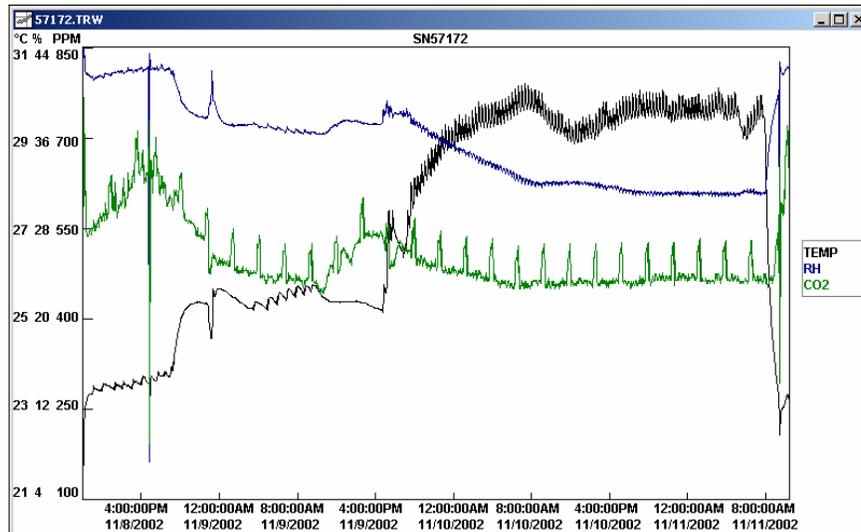
WORKING WITH GRAPHS

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.

8.0 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.
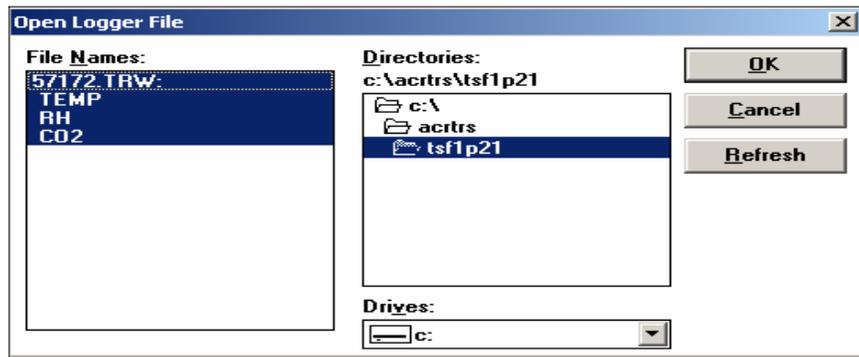
TrendReader's display of logger files in this dialog box departs slightly from the usual Windows style of displaying files. A logger file name is displayed in capital letters and the names of its channels are displayed below it in lower case letters. The dialog box above is displaying two of the sample 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.

8.0 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.

8.0 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.
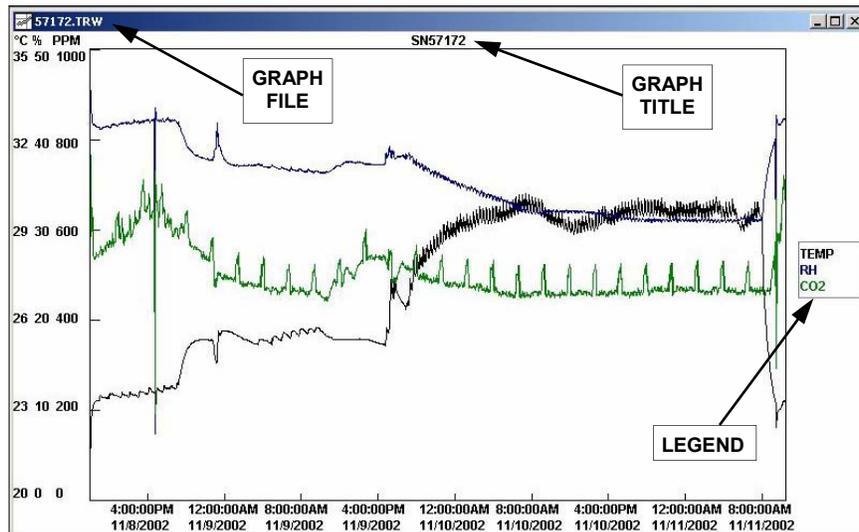
The status bar

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.

8.0 DATA LOGGER OPERATION, CONT'D…..
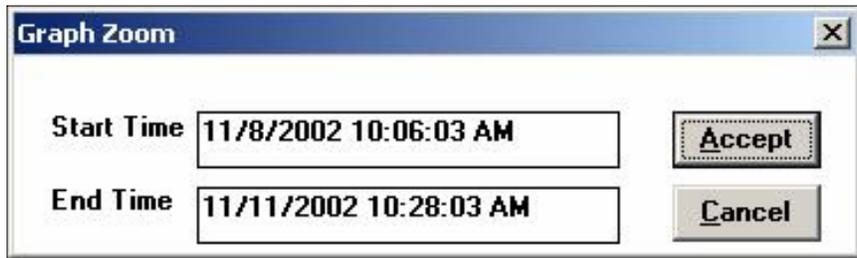
WORKING WITH GRAPHS, CONT'D…..

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.

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

8.0 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.

8.1 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, 2000 & XP:

- 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.

8.1 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 +/- 2 * sample rate/24 * 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 it's 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.

8.1 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".

THIS PAGE HAS BEEN LEFT
BLANK ON PURPOSE