

# RADEX

CARBON MONOXIDE MONITOR

INSTRUCTION  
MANUAL



**rpb**<sup>®</sup>respiratory  
MODULAR ADVANTAGE

# INDEX

Read all instructions & warnings before using this product. Keep this manual for future reference.

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**[www.rpbrespiratory.com](http://www.rpbrespiratory.com)**

# INTRODUCTION

This **RADEX MONITOR MODEL 08-200** is designed to monitor breathing air for carbon monoxide contamination from a compressed air source. Compressed Air is supplied to the unit through the sampling hose where the air flows through a preset pressure regulator and a fixed orifice flow restrictor. This system delivers a continuous flow of compressed air into the sensor chamber. The monitor continuously analyses the air and displays a CO reading in ppm and the temperature of the compressed air.

To provide added protection the Radex CO monitor provides traceability via PC, this feature provides users with the ability to review data which has been recorded and stored. The traceability feature provides information on CO levels, temperature, alarms, calibration and date and time. The unit is also equipped with an anti tamper device which is activated if the monitor unit is disassembled.

The unit is housed in a robust protective case which can be carried or mounted either on a Radex Airline Filter or on a wall. All system lights and alarms are located on the outside of the protective case. An External power outlet is located on the outside of the protective case this can provide power to an external alarm, strobe warning light or solenoid. The monitor must be supplied with Grade-D air and must be free of oil and water to prevent contamination of the sensor.

The monitor is designed to operate at 12 volts DC and can be used with either the 110/240v – 12v power adaptor (p/n: 08-221) or the 12v cable with Battery Clips (p/n: 08-227). The unit is designed to operate in temperature ranges -10 to +60 C and Humidity levels of 5% - 99% (no condensation).

The Radex Carbon Monoxide Monitor satisfies the requirements of OSHA rule 29CFR 1910.134 (d) (2) (ii) for carbon monoxide monitoring.

RPB Respiratory provides a complete calibration and maintenance service through its service centers. In some locations RPB has units available for rental while your unit is being serviced.

Contact our Customer Service Department on: **1-866-494-4599** or  
email: **customerservice@rpbresp.com**

# !WARNING!

1. When the monitor is correctly installed and maintained, it monitors the level of Carbon Monoxide in the breathing air. The Radex monitor DOES NOT remove Carbon Monoxide from the air.
2. Do not use this unit, until you have been trained in its use and operation by a qualified individual appointed by your employer. Failure to adhere to the user's instruction manual could result in serious injury or death.
3. Leave work area immediately if the monitor alarm sounds, check air source and wait until alarm mode stops, if it continues change your air source. Use only calibration gases supplied by RPB Respiratory to perform calibration checks, the use of unapproved gases could cause premature failure of the unit.
4. The **RADEX CARBON MONOXIDE MONITOR MODEL 08-200** is not approved for use in hazardous or explosive atmospheres.
5. Do not cover the warning alarms that are attached to the unit. Always wear hearing protection when testing the alarm.
6. Do not open the monitor panel as the unit is equipped with a tamper switch and it will void all warranties. Opening of the panel will result in a record being placed in the traceability log and "warranty void" will display on the screen.
7. The unit must be returned to RPB Respiratory to have maintenance and calibration performed on it.
8. The sensor contains sulphuric acid which is poisonous and can cause burns and eyesight loss. Do not allow contact with skin or eyes. If eyes are exposed to the acid flush thoroughly and seek medical attention. Always wash hands thoroughly after handling a sensor cell.
9. RPB Respiratory cannot accept any liability of whatsoever nature arising directly or indirectly from the use or misuse of RPB Respiratory products, including purposes that the products are not designed for.
10. RPB Respiratory is not liable for damage, loss or expense resulting from the failure to give advice or information or the giving of incorrect advice or information, whether or not due to RPB Respiratory's negligence or that of its employees, agents or sub-contractors.

# SET UP

## BEFORE YOU USE YOUR RADEX CO MONITOR

Unpack the unit from the shipping carton and remove protective wrap from the unit. Read all instructions and warnings that are included with this unit.

In the instruction pack is a CD loaded with the RPB program which will provide you with the ability to view the data records that are stored in the CO monitor.

Insert the CD into the disc drive of a Computer that is connected to the internet, once you have opened the CD click on the “SETUP” icon. The program will auto-run so it will step you through the download process. Once the download is complete you will have a new program called RPB added to your list of programs, a shortcut will be shown on your start menu and desktop, this will give you easy access to the CO monitor data records.

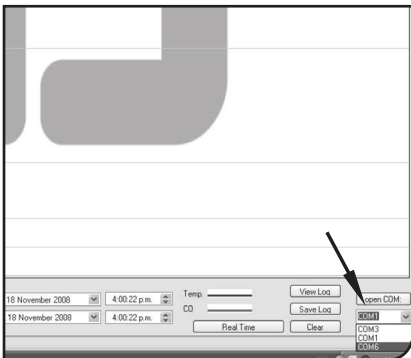
To retrieve information from the CO monitor you will have to have the PC connected to the monitor using the USB cable provided p/n 08-225. Detailed instructions are listed in the PC Application section on page 11.



**RPB Radex  
Monitor**

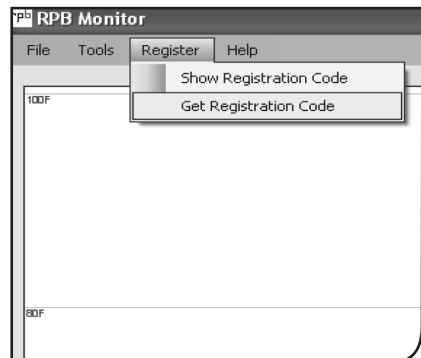
## WARRANTY REGISTRATION

Once you have completed the RPB program download, connect the monitor to your PC using the USB Cable p/n 08-225, click on the RPB icon and open the program.



**Fig. 1.0**

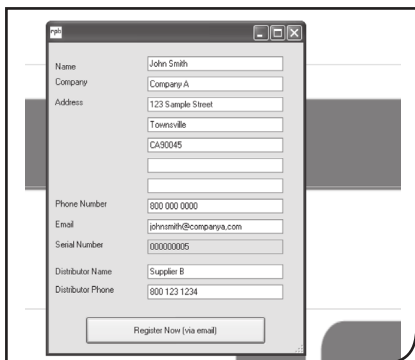
Click on the COM port drop down box as Fig 1.0 and select the COM Port that the unit is connected through, an easy way of checking which COM port the unit is using to remove the USB and reconnect you will see a COM Port reappear.



**Fig. 1.1**

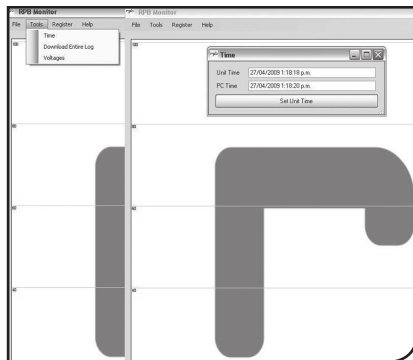
Click on the “Register” tab at the top left of the screen and select “Get registration code”. This will open a dialogue box Fig 1.2 which you can enter your details.

## WARRANTY REGISTRATION (Cont.)

A screenshot of a web-based warranty registration form. The form contains several input fields for personal and company information. The fields are: Name (John Smith), Company (Company A), Address (123 Sample Street, Townsville, CA90045), Phone Number (900 000 0000), Email (johnsmith@companya.com), Serial Number (000000005), Distributor Name (Supplier B), and Distributor Phone (900 123 1234). At the bottom of the form is a button labeled "Register Now (via email)".

**Fig. 1.2**

Having filled out all the required fields click the REGISTER VIA EMAIL button. This will complete the registration of the unit for your 12 month warranty. Your Distributor may have already registered the Unit for you; this can be checked by clicking on "Show Registration".



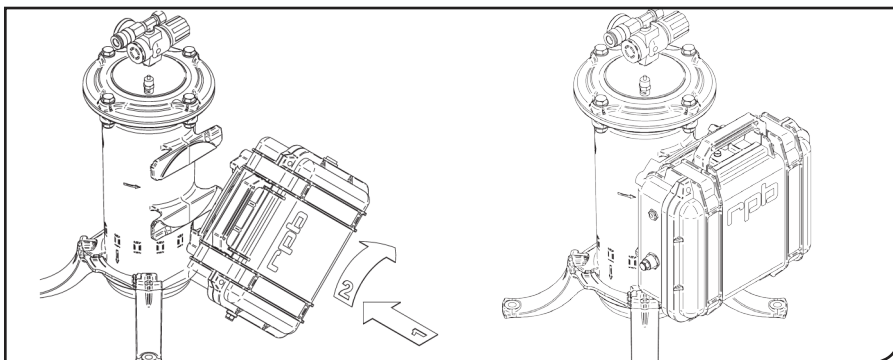
**Fig. 1.3**

Once you have registered your monitor you can set the units clock to your PC by clicking on "TOOLS". Then click on "Time" from the drop down menu Fig 1.3 then click on "Set Unit Time".

## BEFORE YOU USE YOUR RADEX CO MONITOR

The Radex CO Monitor can be either positioned on a Radex Airline Filter utilizing the Mounting Bracket P/N 08-232, or wall mounted using the Wall Bracket P/N 08-231.

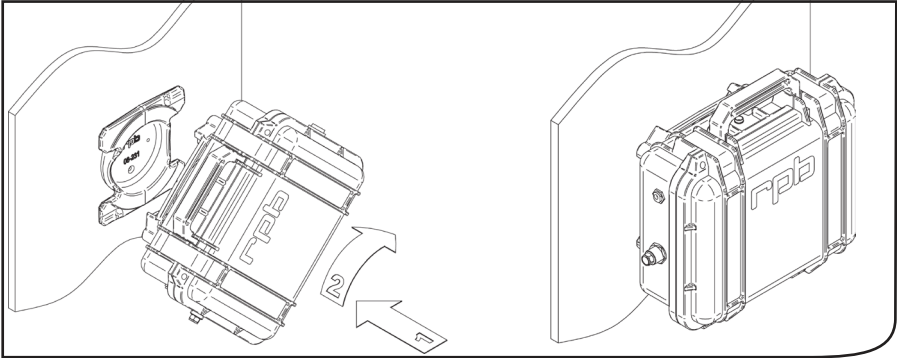
## RADEX AIRLINE FILTER MOUNTING



**Fig. 1.4**

Position monitor case against locators then turn clockwise. The case will click into position.

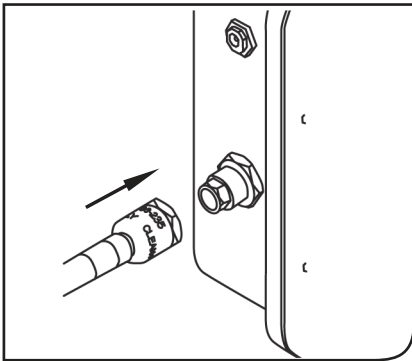
## WALL MOUNTING



**Fig. 1.5**

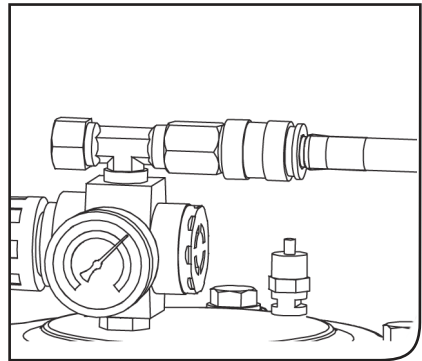
Position monitor case against wall bracket then turn clockwise. The case will click into position.

## AIR CONNECTIONS



**Fig. 1.6**

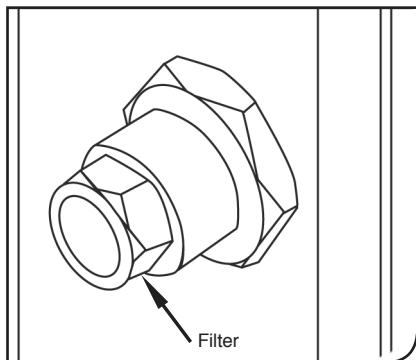
Connect the air supply hose to the air inlet on the monitor.



**Fig. 1.7**

Then connect the air supply hose to a Grade D air source which provides between 10-125psig.

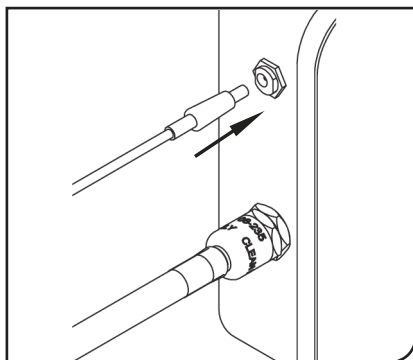
## AIR CONNECTIONS (cont.)



**Fig. 1.8**

The air inlet is fitted with a filter which should be removed and cleaned on a regular basis.

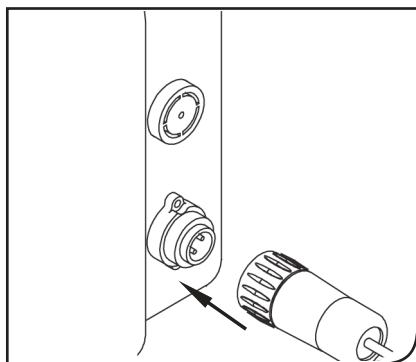
## POWER CONNECTIONS



**Fig. 1.9**

Connect the plug from the power adaptor to the power input port on the CO Monitor. Then connect power adaptor or battery clips to power source.

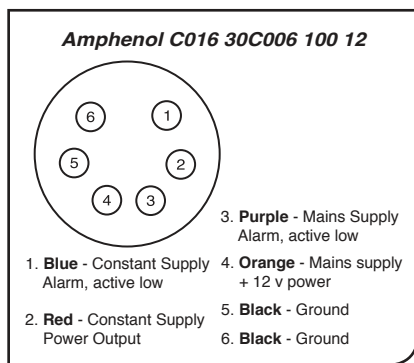
## POWER CONNECTIONS (cont.)



**Fig. 2.0**

If you are using an external alarm device, connect the plug of the device to the external power outlet. The external alarms should be located close to the work area so they can be seen and heard by operators.

## EXTERNAL ALARM WIRING DIAGRAM



**Fig. 2.1**

If you choose to organize your own external alarm device you are recommended to use a qualified Electrician. To actuate external devices with a relay, the relay coil should be connected between pin 3 (main power) and pin 4 (alarm). The relay should be a 12v DC, low power type.



# OPERATION

The Radex CO monitor has four modes of operation.


1. **OPERATING**, where data is logged and alarms are triggered by excess CO, low power and faults.
2. **SETUP**, which is entered by pressing the SETUP button.
3. **DATA RETRIEVAL**, which is only possible when the unit is connected to a PC and a connection is opened.
4. **CALIBRATION CHECK**, this mode is used to perform monthly calibration checks on the unit.

When the Radex CO Monitor is switched on, you should always watch the display to ensure correct operation, it will display the serial number and software version then it performs a self diagnostic test. Should there be a fault during the self diagnostic test the screen will display a phone number and email address for you to contact a service center.

Once the Radex CO monitor has completed its start up procedure, the unit will enter operating mode and show one of three screens pictured below, depending on the status of the alarm.

## ALARM MODES

The alarm will sound if the CO concentration rises to or above 10ppm according to USA, European, Australian regulations (5ppm for Canadian Regulations). The alarm can be silenced for 30 seconds by pressing OK (snooze mode). If after 30 seconds the gas concentration is still above the threshold, the alarm will sound again.



If the gas concentration rises by more than 2ppm while the alarm is silenced, the alarm will sound, regardless of timeout. The user can again silence the alarm; however, it will be subject to the 30 second timeout. All alarms and snooze modes are recorded by the data logger built into the unit.

If the unit is operating on mains power supply, and the mains supply is disconnected, a short warning beep will be sounded; this will alert the user to the loss of mains power.

If the unit is operating on batteries, and the battery voltage falls below a set threshold, then a more insistent warning will be sounded, (“beep-beep-beep” pause “beep-beep-beep” pause “beep-beep-beep”). If the alarm is already sounding, the patterns are inverted:

### **SELF TEST FAILURE**

The unit goes through the self-test and shows the success or failure of each test. If certain parts of the self-test fail, the unit will not proceed to operational mode, and will display a service phone number and service email address. Operation will be inhibited until a self-test passes, this ensures safe operation at all times as Carbon Monoxide is odorless and can cause serious injury or death.

The unit will display days left until recalibration is necessary (every 180 days) and days left before sensor replacement is necessary (24 months).

### **FAULTS THAT INHIBIT OPERATION**

- Data Flash Memory failure
- Calibration Due (The operator can accept responsibility to override by pressing OK).
- Sensor Replacement Due (The operator can accept responsibility to override by pressing OK).
- EEPROM failure (Calibration Data cannot be read)

### **FAULTS THAT DON'T INHIBIT OPERATION**

- Battery low or Battery Failure – an alarm will sound to alert users of the fault
- Temperature outside operating range

### **BATTERY CHARGING**

The Radex CO Monitor is equipped with a rechargeable battery and onboard battery charger which is operational when the unit is connected to a power supply. The battery is for back up only and is used in the event of a power failure. The model 08-200 is not designed to operate full time on the battery.

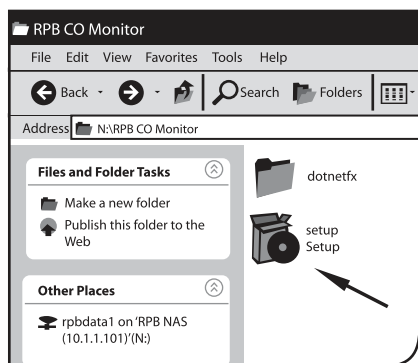
When the monitor is connected to a power supply but turned off, the LCD will display "Charging". And when the unit is turned on the LCD will display a series of rotating bars to indicate charging.

# PC APPLICATION

The PC application allows Data Records to be retrieved from the Radex CO Monitor. This provides users with the ability to review records from the unit and monitor on a regular basis what is happening in the work environment. The PC application may not be compatible with all types of PC operating systems.

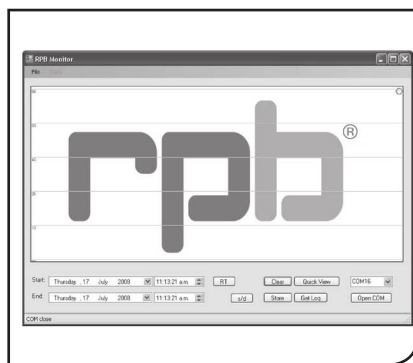
## PC SET UP

A USB cable is provided for connecting the Monitor to a PC. The first time it is connected to a PC, a message will pop up indicating which virtual COM port the USB interface has been given. Another way to confirm which COM port the PC should be using is to plug and unplug the device and see which COM port disappears from the drop-down COM port list on the PC application.



**Fig. 2.2**

Double click on the RPB icon on your desktop to start the CO monitor program.



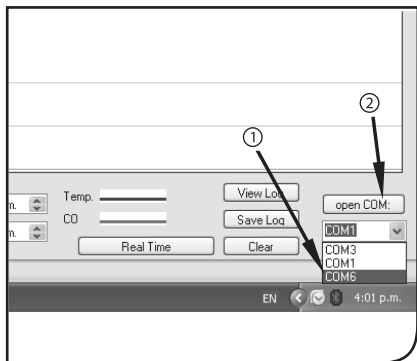
**Fig. 2.3**

When it starts up, a splash screen with the RPB logo comes up, and then the main window opens.

## REAL TIME INFORMATION

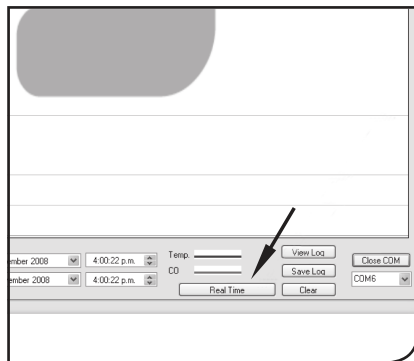
With the RPB Radex CO Monitor you can access real time information to see what is happening in your plant right up to the minute in a couple of simple steps.

Connect your PC to the Radex CO Monitor using the USB cable, start up the RPB CO Monitor program. When the main screen displays as Fig 2.3, select the COM port from the drop down list as Fig 2.4 and click on the COM port of your choice.



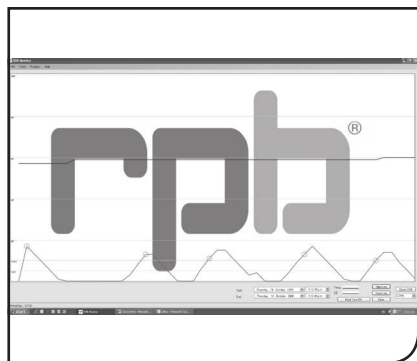
**Fig. 2.4**

Click on the COM drop down box, select the desired COM port then click on the OPEN COM button to open the COM port.



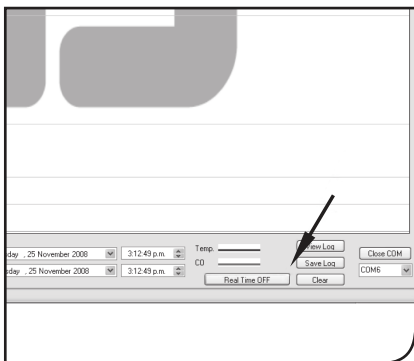
**Fig. 2.5**

Click on the REAL TIME button.



**Fig. 2.6**

The screen will then display what events are occurring in real time, this can assist with trouble shooting to find out the cause of an air quality issue, like vehicles parking beside air intakes or compressors overheating.



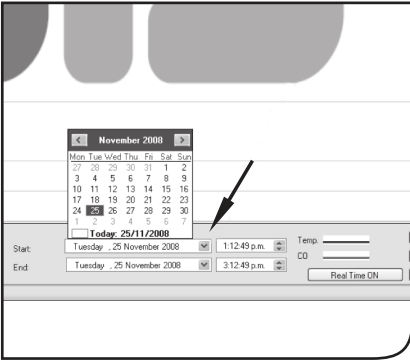
**Fig. 2.7**

To stop the real time monitoring, click on the REAL TIME OFF button.

### 5.3 RETRIEVING DATA RECORDS

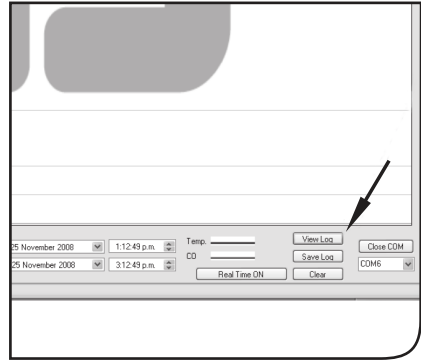
#### Down loading a Data Record

The RPB Radex CO Monitor offers the ability to download and save data records for traceability. To download Data records from a Radex CO Monitor, Select and open a COM port using the drop-down menu as Fig 2.4 then click on the OPEN COM button at the bottom-right of the main window Fig 2.4.



**Fig. 2.8**

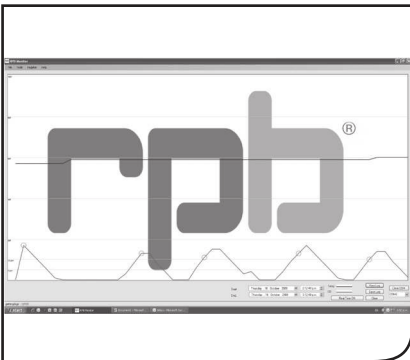
Start and end dates and times can be set to download a particular section of the Data record.



**Fig. 2.9**

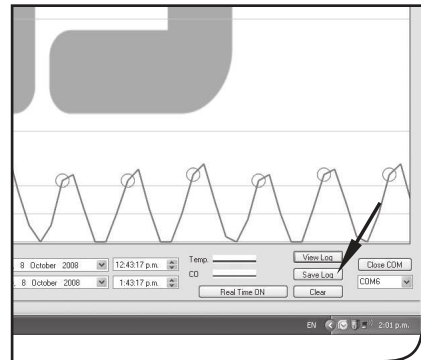
Once you have set your start and end dates/times click on the VIEW LOG Button, this will begin the download.

#### Saving a Data Record



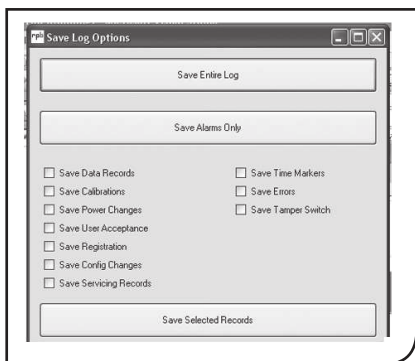
**Fig. 3.0**

This shows the main screen with a retrieved Data Record.



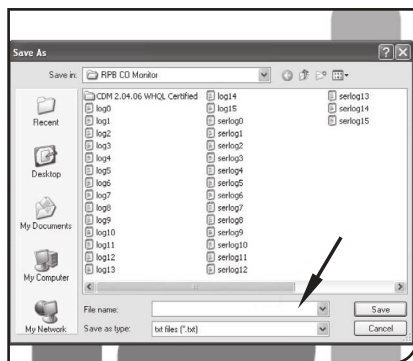
**Fig. 3.1**

To save a Data Record, click on "SAVE LOG" button.



**Fig. 3.2**

The "Save Log Options" window will display and you have the option to choose between saving the entire log or alarms only, (alarms only will also display when an alarm has been cancelled). You also have the option to customize the information by ticking the desired boxes and clicking on "Save Selected Records".



**Fig. 3.3**

Click on your choice of file then a SAVE AS window will display where you can have the opportunity to rename the file and save in the desired location. The file is saved as a .txt file.

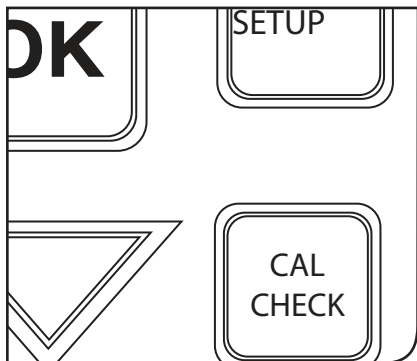
To clear the graph, click on Clear. (This will only clear the data from the current screen, records will still be held on the data logger).

### **Saving a Data Record (cont.)**

If you have any questions about the data record you can email the .txt file to **customerservice@rpbresp.com** for one of our team to review and assist with any questions.

# CALIBRATION

The Radex CO Monitor should be checked for accuracy on a monthly basis, this can be done using the Zero Air and 20ppm CO calibration kit, p/n: 08-228.



**Fig. 3.4**

To begin the Calibration press the CAL CHECK button on the monitor panel.



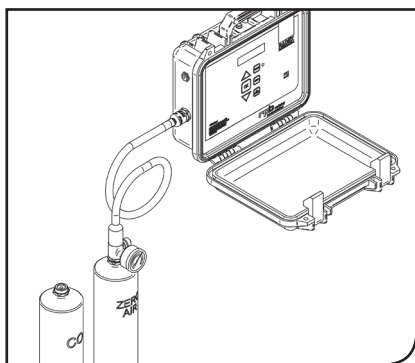
**Fig. 3.5**

Once CAL CHECK has been pressed, the screen will step you through the procedure.



**Fig. 3.6**

Then press the OK button to begin the Calibration procedure. You will be required to press OK between steps.



**Fig. 3.7**

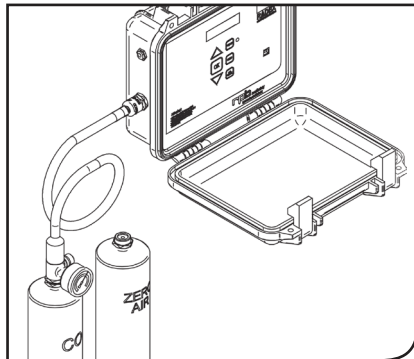
At this time the zero air gas is to be connected to the Air inlet port on the side of the unit then press the OK button on the panel. The unit will count down from 60 and then take 10 set points.





**Fig. 3.8**

Once this is completed the screen will instruct you to connect the Carbon Monoxide Gas (20ppm for USA, 10ppm for Canada, Australia and Europe).



**Fig. 3.9**

At this point the zero air gas is to be removed and the 20ppm Carbon Monoxide gas is to be connected to the air inlet port on the side of the unit as shown in Fig 3.9 and press the OK button on the panel. The unit will count down from 60 and then take 10 set points.



**Fig. 4.0**

Now press the OK button on the panel and disconnect the 20ppm Carbon Monoxide from the unit. The alarm will sound once it resumes to normal operation. If there has been an error during the calibration the screen will display an error message. You will be provided with a phone number and email address to contact the factory for servicing support.

# MAINTENANCE & SERVICE

To maintain the warranty, the Radex CO Monitor should be calibrated by an authorized service center every 6 months, a calibration reminder will display on the screen.

The CO Sensor has a lifespan of 24months a service reminder will display on the screen and the sensor can only be replaced by an authorized service center as the sensor has to be set to the factory calibration in order to provide accurate gas detection.

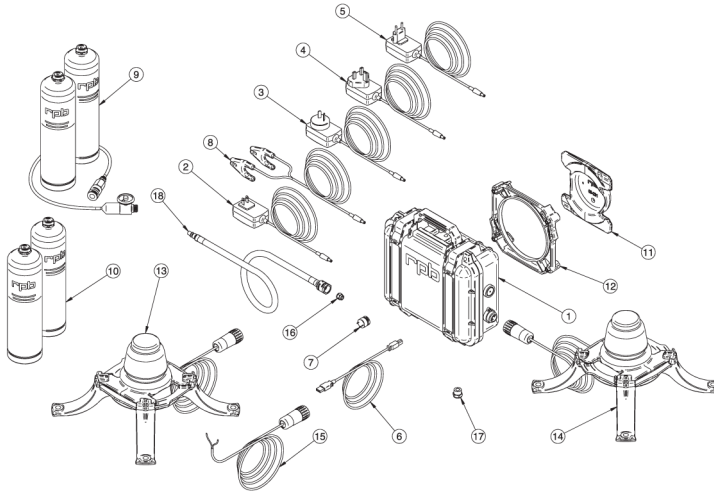
## MAINTAINENCE RECORD

Date	Maintenance Details	Signed

If you have any questions or would like your unit serviced at different intervals please contact our service department or email: [customerservice@rpbresp.com](mailto:customerservice@rpbresp.com)

**T: 1-866-494-4599 F: 1-866-494-4509**  
**[www.rpbrespiratory.com](http://www.rpbrespiratory.com)**

# PARTS & ACCESSORIES



Item No.	Description	Part No.
1	CO Monitor	08-200
2	Power Adaptor Pack - USA	08-221
3	Power Adaptor Pack - AU/NZ	08-222
4	Power Adaptor Pack - UK	08-223
5	Power Adaptor Pack - Europe	08-224
6	USB Cable	08-225
7	CO Sensor and Calibration	08-226
8	12 Volt Cable with Battery Clips	08-227
9	Calibration Kit c/w Zero Air & 20ppm Carbon Monoxide Cylinders	08-228
10	Replacement Zero Air & 20ppm Carbon Monoxide Cylinders	08-229
11	Aluminium Wall Bracket	08-231
12	Mounting Adaptor and Screws	08-232
13	Strobe light c/w 50ft Cable	08-233
14	External Alarm & Strobe Light c/w 50ft Cable	08-234
15	50ft Cable Assembly with Plug	08-235
16	Inlet Filter	08-236
17	Outlet Filter	08-237
18	Supply Hose	08-238

## OTHER PRODUCTS



**ISO9001**  
ACCREDITED COMPANY

## DID YOU KNOW

We can also supply you with the following...

### NOVA 2000 BLASTING HELMET

The **NOVA 2000** has been designed for blasting professionals. The **NOVA 2000** is the most advanced abrasive blasting helmet available, with fully padded pillow foam liner for extra comfort and noise attenuation, wide angle vision, even air distribution assures a pleasant working environment, optional climate control devices. Things cannot get much better.

### ASTRO BLASTING HELMET

**ASTRO** is your number one choice economic Abrasive Blasting Helmet which meets safety standards worldwide.

This is the lightweight, robust helmet you have been waiting for. It helps to reduce fatigue, reduce down time and increase productivity.

### RADEX AIRLINE FILTER

The **RADEX Airline Filter** offers you more capacity, versatility & filtration. You can combine the versatility of either floor or wall mounting with increased filtration capacity.

Our range of optional equipment means you can customize your filter to meet your requirements.

### FILTER CARTRIDGE

These large capacity six stage Filter Cartridges remove moisture and particulates to 0.5 micron & odor from the compressed air stream, providing you with clean breathable air.

RPB 125/2

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