

**Wilks Enterprise, Inc.**

**InfraRan™**  
Specific Vapor Analyzer



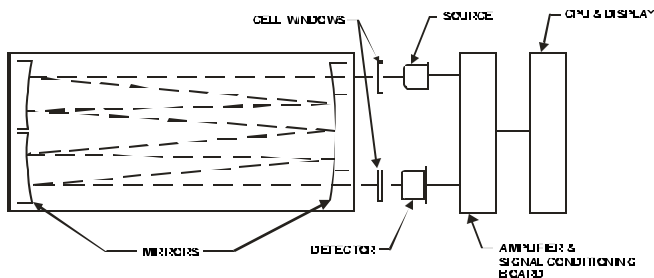
**N<sub>2</sub>O** carbon tetrachloride  
Specific Freons **CO<sub>2</sub>**  
co **SF<sub>6</sub>** Toulene **IPA**  
**R-134A Isoflurane**  
AK-225G Anesthetic Gases

[www.wilksir.com](http://www.wilksir.com)

The InfraRan Specific Vapor Analyzer is a factory-calibrated infrared instrument for the detection and measurement of contaminants in ambient air at the parts per million (ppm) to percent concentration levels. Its user-friendly, menu-driven software and portability make on-the-spot detection and quantitative measurement of a single gas or multiple gases (depending on model purchased) fast and easy. It is ideal for OSHA compliance testing including Threshold Limit Value (TLV) monitoring, plant surveys, and most ambient air monitoring applications.

### PRINCIPLE OF OPERATION

The InfraRan Specific Vapor Analyzer is a single-beam infrared spectrometer designed specifically for easy, on-site ambient air measurements of a specific gas or gases. The analyzer can be purchased and factory calibrated to measure virtually any compound (up to 4) that has an absorption band in the infrared region from 2.5 to 14.5  $\mu\text{m}$ . The analyzer utilizes infrared absorption filter photometry as its operating principle. The integral air pump draws the sample into the cell and the sample absorbs the infrared energy from the beam. The detector measures the amount of energy absorbed at the selected wavelength and the microprocessor converts it into concentration units (ppm or percent) which are read from the analyzer's vacuum fluorescent display. The optical filter is selected to enable the spectrometer to be specific for the specified gas.



*Schematic Representation of  
InfraRan Analyzer*

### LIGHTWEIGHT AND PORTABLE

The analyzer weighs 18 lbs. and with its internal battery power, the InfraRan Analyzer is a truly portable instrument. The InfraRan Specific Vapor Analyzer can run up to 8 hours on its battery pack, and includes internal data logging for added measurement and record keeping convenience. No additional equipment is necessary since all supplies that are required for monitoring are self-contained. The InfraRan Specific Vapor Analyzer can be factory-calibrated for most compounds that have an infrared absorption band in the 2.5  $\mu\text{m}$  to 14.5  $\mu\text{m}$  region.

### EASY TO USE

The InfraRan Specific Vapor Analyzer is factory calibrated so that no chemical standards are needed by the user to calibrate the analyzer. It's user-friendly, menu-driven software and easy-to-read display prompt the user through all aspects of the analysis – enabling both non-technical personnel, as well as those with an infrared gas analysis background, to make fast, accurate measurements.

### FAST RESPONSE

Response time is less than 10 seconds to 90% response with a stable maximum concentration in less than 30 seconds (for a single gas). Since the air sample is continuously delivered to the cell by means of a built-in sampling pump, the analyzer outputs real-time concentration data with the display being updated every second, allowing personnel to be alerted to potential hazards before they become serious.

### LOW MAINTENANCE

The InfraRan Specific Vapor Analyzer provides a reliable, maintenance-free method for dedicated monitoring of a specific gas or gases. Its design combines a hardware/electronic/software package with a measurement principle that can be easily applied to meet a variety of application needs. The analyzer does not require the use of any consumable items other than zero gas and particulate filters, which eliminates the need for purchasing a large quantity of other supplies to keep the InfraRan Analyzer operable.

### ECONOMICAL MONITORING

The analyzer uses a nondestructive measuring principle and only requires a source of power for operation (internal battery pack or external operating supply – 120 – 220 V AC – 50/60 Hz). With its menu-driven software, direct-reading display, and simple controls, minimal - if any - training is required to operate the analyzer. Thus, monitoring costs with the InfraRan Specific Vapor Analyzer are very low compared to other analytical methods or instrumentation.

## CALIBRATION

The InfraRan Analyzer is factory calibrated for the specific gas(es) for which it is being purchased. The calibration of infrared analyzers, including the InfraRan Specific Vapor Analyzer, is very stable as long as the components in the optical system are not replaced or realigned. Recalibration of the analyzer should not be required more than once a year.

Should recalibration of the analyzer be required, it is recommended that it be returned to Wilks Enterprise. Complete recalibration does require a laboratory setup capable of generating at least five concentration of the specific gas(es) in air that cover the full analysis range, as well as computer data acquisition and processing. Please contact us for details and pricing.

## DATALOGGING

Datalogging is standard on all InfraRan Analyzers, with the exception of the 4-Gas Refrigerant model. The datalogging interval is adjustable from 1 second to 2 minutes. The datalogging memory capacity results in the following file size and corresponding total logging time:

2300 lines 38.3 min (@ 1 sec/interval) to 76.6 hrs (@ 120 sec/interval)

The download function of the InfraRan Analyzer produces a report as a formatted text file. Alternatively, an Excel spreadsheet is available that produces an Excel Workbook with improved formatting and conversion of all data to numeric values that allow further processing.

## TYPICAL GASES/MEASUREMENT RANGES

The InfraRan Specific Vapor Analyzer is ideal for measuring a single gas and can be factory calibrated for most infrared-absorbing gases. The following is a listing of typical gases and measurement ranges. Please contact Wilks Enterprise for other gases and measurement ranges of interest that are not included in this list. Standard multi-gas models are also available for refrigerant or anesthetic gas measurements.

<b>Gas</b>	<b>Recommended Measurement Range (ppm)</b>
Acetone	0 – 1000
AK-225G	0 - 500
Carbon Dioxide (absolute)	0 – 3000
Carbon Monoxide	0 – 100
Carbon Tetrachloride	0 – 25
Desflurane	0 – 30
General Hydrocarbons (Hexane)	0 – 500
HFE-7100	0 - 750
Isoflurane	0 – 30
Isopropyl Alcohol	0 – 500
Methylene Chloride	0 – 100
Nitrous Oxide	0 – 100
Perchloroethylene	0 – 50
R 114	0 – 2000
R 12	0 – 2000
R 134A	0 – 2000
R 236 fa	0 - 2000
Sevoflurane	0 – 30
Sulfur Hexafluoride (SF <sub>6</sub> )	0 – 2
Toluene	0 – 200

# **SPECIFICATIONS**

## **PHYSICAL**

### **Power Requirements (Battery Charger – External Operating Supply)**

120-220V AC – 50/60 Hz

### **Battery Pack Rechargeable Nickel Metal Hydride**

12V; 9 Ah capacity

### **Dimensions**

15" x 7.3" x 7.5" (381 mm x 185 mm x 191 mm)

### **Mass**

18 lbs (8.2 kg)

### **Enclosure**

High Impact Polymer

## **FUNCTIONAL**

### **Type**

Single Beam Infrared Spectrophotometer

### **Optics**

Cell 1<sup>st</sup> Surface Gold & Pyrex

Photometer, Fixed Band Pass Filters (specific to the gas or gases to be measured)

### **Cell Pathlength**

6.0 Meter (256") is used for most gases – for a high concentration range of a specified gas or gases, a 1.2 meter or 16 cm cell may be used

### **Sample Cell Volume**

0.45 liters (0.0159 ft<sup>3</sup>)

### **Sample Flow**

10 liter per min (21.2 ft<sup>3</sup>/hr)

### **Gas Purge**

5 Cell Volumes for 99% purge of cell (approx. 5 sec @ 10 liters/min)

### **Measurement Cycle**

Display Updated Every Second

### **Source**

Thin film on diamond-like carbon support

### **Communications Port Data Output**

USB and RS232 for Connection with PC

### **Concentration Alarm**

High & Low (selectable by user)

### **Display**

Vacuum Fluorescent - 8 Lines x 40 Characters Plasma Display

### **Key Pad**

20 Key Tactile Keypad

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Printed in USA0608