IR+ Portable Analyzer

Introduction

PID Analyzers offers a new compact infrared (IR) based wall mount analyzer for leak detection, environmental, area, or laboratory monitoring... applications. The Model 114+ is extremely easy to use with its simple keypad for programming. It has the capability to add 1-3 additional sensors: electrochemical (choose from 30 including: O_2, H_2S, NH_3...), LEL... The Analyzer is in a waterproof enclosure & can be easily moved from site to site. The 114 IR+ Portable analyzer will operate for > 10 hours off a NiM hydride battery and can store >7,000 data points (nearly a week of data using a 5 minute average).

Model 114

Theory

Principle of Operation

The technique for measuring the concentration depends upon the Lambert Beer Law:

$$I = I_o e^{-kx}$$

Where- I is the measured intensity, I_o is the incident intensity, k is the absorption coefficient, and x is the pathlength

This dual beam sensor consists of a pulsed IR source, a fixed path length cell, a measurement filter, a reference filter and an IR detector (thermopile).

Infrared radiation in the 4 to 5 micron region is absorbed by carbon dioxide and converted into molecular vibration energy. This absorption is associated with the C-O stretching, or bending frequencies. Infrared absorption spectra are due to transitions between vibrational- rotational levels.

Features

- Rugged plastic case for outdoor or field applications
- Fast response 15 sec. to 90% for IR
- IR- for CO_2; ranges-0 to 3,000, 0-2%, 0-5%, 0-30%, 0-100%; or- (with HC sensor) total hydrocarbons, IR, Methane 0-100% LEL or 0-100% V/V
- Calibration & zero stored in memory- no pots
- Easy to access detectors & electronics
- Choose from 1-3 of the following detectors:
  IR-hydrocarbons, % LEL or % v/v; range- 100 ppm to 100%
  Electrochemical- toxic gases- ppm
  LEL- hydrocarbons, % levels...
- Runs off battery; ideal for remote locations where AC is not available
- Libraries for LEL allow direct reading without recalibration

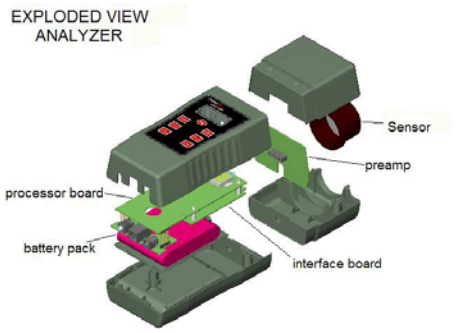
Applications for the Detectors

IR- Area Monitoring in:
Ambient CO2 in buildings, greenhouses..
Breweries
CO2 separation plant
Methane
Leaks in natural gas pipelines
LEL levels of hydrocarbons
Electrochemical-oxygen deficiency, toxic gases (O2, HCN, H2S, SO2, NO, NO2, NH3, CO, CO2, HCl, H2, Cl2, PH3, SiH4)- ppm levels
LEL %-hydocarbons, CH4

Model 114 IR+ Portable Analyzer

Specifications

Enclosure: Rugged ABS housing
Temperature range: 0-45°C
Display & Programming: LCD/Keypad
Detector: Single detector- IR+
Dimensions: 10 " L x 3 " W x 2.25 "D
Weight: 1.8 pounds
Display: LCD with backlighting
Outputs: RS232 & 0-1VDC
Voltage input- battery or charger



Controls

Keypad:

Cal-Cal gas, Bkgd Zero, Respond As, Cal, Exit
Log- Auto, Manual, Setup, Exit
Incr/Decr- Move though menu, On/Off, turn alarm on/off...

Options

- 1-3 add'n. Sensor- electrochemical (choose from 14 different EC sensors, TCD, LEL...)
- soft carrying case
- hard carrying case
- Calibration gas

Reliability

The basic simplicity, durable construction and design of the Model 114 has resulted in the elimination of problem areas associated with other continuous analyzers. In short, the instrument is both designed and constructed to take the abuse required from field instrumentation. It will provide many years of service in the plant.

Other Instrumentation-

PID Analyzers manufactures continuous monitors such as: FIDs & PIDs for total hydrocarbons, NDIRs for CO, CO_2, and hydrocarbons, Electrochemical & Paramagnetic O_2 Analyzers & TCD Analyzers for Hydrogen, & Process GCs. Additional products include portable PIDs, portable GCs laboratory GCs, add-on detectors and XRF instruments.

How to Contact us
PID Analyzers, LLC
780 Corporate Park Dr, Pembroke, MA 02359
T 1 781 709 2131; F 1 781 709 2050
1 800 724 5600
email sales@hnu.com
web address: http//www.hnu.com or

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LEL, Methane, CO2
Model 114 IR+ Analyzer