

Low Cost VOC ANALYZERS

PID or FID

Safety, Stack & Environmental Monitoring

NEW

CE



WiFi



*Total VOC's, in Air or Water Samples
Cell phone can be used to program or store data*

PID
ANALYZERS

Model 112A VOC's in Air or Water

hnu

VOC's +

O₂, H₂S, CO, CH₄, CO₂

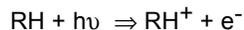
Introduction

The **Model 112** Analyzers are reliable, flexible and versatile instruments based on photoionization (PID) or flame ionization (FID) detectors for the measurement of volatile organic compounds (VOCs). An electrochemical, IR or CG sensor can be added to measure toxic gases in addition to VOC's. These analyzers have a software setpoint meter that can be used to control outside air vents or alarm if the gas is above an alarm level.

Other Continuous Analyzers manufactured by PID Analyzers include the Model 201-B PID or FID Analyzer for total VOCs, Thermal conductivity detector (TCD), Model 204 .

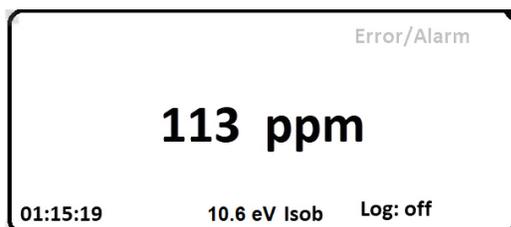
Principle of Operation

PID-description-The process of photoionization is initiated by the absorption of a photon of ultraviolet radiation energetic enough to ionize a molecule (RH) by the process shown below:



where $h\nu$ represents a photon with an energy > the ionization potential of species RH.

≥ The ions are collected in an ionization chamber which is adjacent to the lamp and contains an accelerating electrode (biased positively) and a collection electrode where the current is measured. After amplification, the current measured is proportional to concentration. The response measured will be a summation (total) of the hydrocarbons ionized. **FID Description** - In the FID, the sample is burned in a hydrogen-air flame and the ions formed from carbon containing compounds are collected by applying a positive potential to the jet and measuring the current at collection electrode just above the flame. After amplification, the current measured is proportional to concentration. The response measured will be a summation (total) of the hydrocarbons ionized. A typical OLED display is shown below.



Applications

Hydrocarbons & Methane (FID)

VOC's from carbon beds
VOC's from manufacturing- air or water
VOC's from hydrocarbon tank farms
Drying oven ppm (PID) & % LEL (CG)
Pill Coating ppm (PID) & % LEL (CG)
Stack & Vent monitoring ppm or % LEL
Monitoring workplace atmospheres
Control outside makeup air to minimize air exchanges and keep levels of VOCs at a minimum
Detection of leaks from processes
Monitor/Control the buildup of indoor air pollutants
Safety Monitoring
Scrubber outlets- efficiency of VOC's

Features-

Automatic Restart- In the event of a power outage, the instrument will automatically restart

Wide operating range with no range changing necessary- **16 Bit ADC**

Push button calibration- adjusts response

RS232 digital output - can print to a serial printer or print to a PC; **4-20 mA analog** output (optional for single channel) to interface to PLC or DCS system. For multichannel data acquisition, the RS485 output is required.

Stored calibration values

Audible, visible, remote alarm-

Datalogging (programmable) for thousands of points that can be uploaded to the office via Internal website & WiFi (optional)

Remote calibration of Model 112A (optional) no need to visit remote analyzer location

Remote control of Model 112A from office PC or iPhone or Android phone

Low Cost Single or Multiple Sensor Analyzers **Crisp OLED Display, Internal Web Site**

Specifications

PID, FID Electrochemical Sensors, IR, CG sensors specifications are available (see back Page Table I).

**Available as a Single component
PID or FID or with 1 or 2 IR or EC Sensor**

Measurement mode: Continuous

Response time-

PID or FID <3 sec to 90%

EC- 20-50 sec. to 90%

IR- 30-45 sec to 90%

Zero drift- <2% per month t

Span drift- depends on sensor but less than 2% per month with biweekly cal

Single alarm- customer programmable

Wide range of response-from ppm to 100 %

Readout- 2.4" OLED display meter

Standard output: RS232; WiFi, blue tooth

Enclosure:Wall (NEMA 4)-General Purpose 6.75" W x10^{3/8}"H x 6"D;

Weight: 7.4 pounds Power requirements- 100-240VAC, 1 amp

Range-

PID - 0.1 to 4,000 ppm

FID- 1.0 -5,000 ppm

Sensors can be used for safety or environmental monitoring at low ppm levels Higher levels for CG sensors. Oxygen can be measured at % levels or ppm levels depending on the application. CG sensors from 5-100% LEL.

Options

4-20 mA output (single sensor);
RS485 output (multiple sensors) or
optional remote data collection

Dual alarm setpoint- Customer
Programmable

Data acquisition and storage

X Proof- explosion proof
enclosure

Sampling Systems

One of the most difficult challenges is to deliver a sample stream saturated with water at an elevated temperature to the analyzer without any change in the composition of the compounds to be measured. [A photo of one of our sample conditioning system is shown below.](#) For additional information, please contact PID Analyzers.

The system below requires only compressed air for operation and removes all liquid water from the sample. It can be used in a Class I Div 1 area with an X rated purged enclosure system.

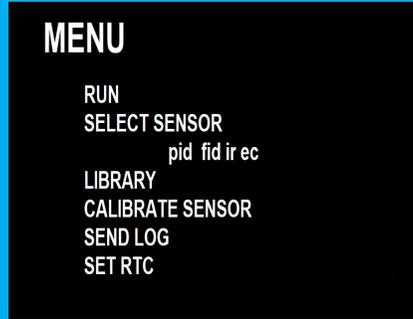
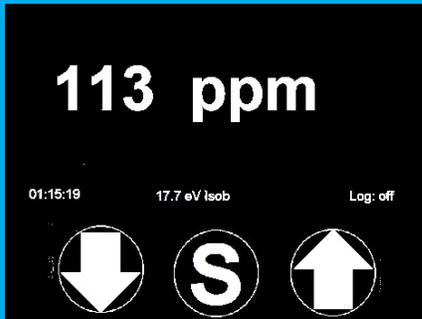
We also offer heat exchangers and heated sample lines for other types of samples. A heated permeation sampling system is ideal for VOC's from moist combustion sources.



Sensor Specs, Software, Internal Web Site, WiFi, Remote Calibration, Remote Data download

**Table I
Sensor Specifications**

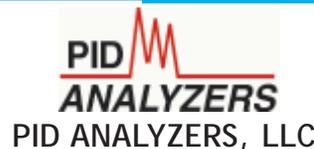
Sensor	Range ppm	Det. Limit	Resp. Time (s)	Interferences
PID	0-4,000	0.1	1	Total VOC's/not CH ₄
FID	0-5,000	1.0	3	Total HC incl CH ₄
Carbon Dioxide	0-10,000	0.1	30	IR/other % ranges
Carbon Monoxide	0-10,000	10	30	IR
Methane	0-1.0 %	0.5	15	IR
Hydrogen Sulfide	0-1000	0.1	30	H ₂ , Mercaptans
Oxygen	0-30%	0.1	30	NA
Combustible Gas	0-100%	0.1	30	NA



Model 112 Ex



**Model 112 at Gas Station Monitoring
Carbon Bed Outlet**



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