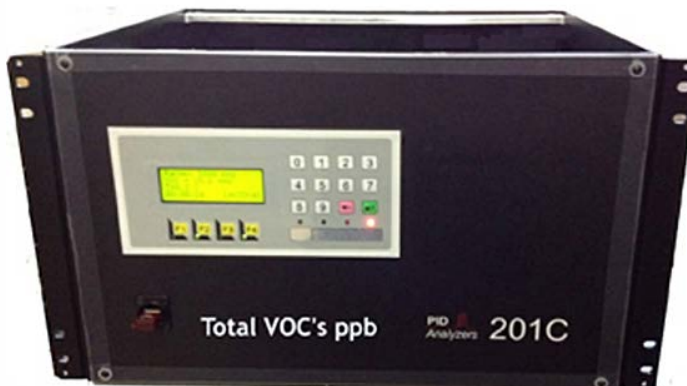


Continuous Monitors for Total VOCs, Total Hydrocarbons, Solvents- (PID or FID)

CE



Model 201 C 19: Rack



Model 201 C NEMA 4 Wall

For VOC's from Stacks, Process Control, Carbon Bed Breakthrough, Thermal Oxidizers, Process Measurements in Chemical, Petrochemical, Manufacturing Plants and Ambient Air Monitoring

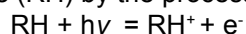
INTRODUCTION, PID & FID DESCRIPTION, & FEATURES

Introduction

The **Model 201-C PID** is a flexible and versatile Analyzer. More than three thousand of these photoionization detector (PID) based Analyzers have been sold worldwide for applications ranging from carbon bed breakthrough, leak detection to stack and ambient air monitoring. This is attributed to the rugged and durable design that is characteristic of all PID Analyzers products. Several years ago, we added the flame ionization detector (**FID**) to the 201 series product line. **Other continuous Analyzers in the 200 series include the Model 202 Infrared (IR)** for Carbon dioxide, hydrocarbons, carbon monoxide, thermal conductivity detector (**TCD**), **Model 204** and a **Model 210 Zirconium Oxide Oxygen Analyzer**. The addition of these new Analyzers greatly improves the capability and range of process analyzers from PID.

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

Applications: PID or FID

Monitoring effluents from chemical, refining, or manufacturing
Carbon bed breakthrough
Leak detection- from process equipment
Non methane Hydrocarbons in Ambient or Stack-FID/Catalyst
Drying ovens for removing solvents
Incineration
THC in ambient or plant
ppb levels of VOCs- PID only
Remediation site monitoring
Intake air in chemical or manufacturing plants- used to control recirculation of air
VOC's in water with optional Sparging system (Model 650) for Total VOCs in water at ppm-ppb levels

Features-

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

Low cost of ownership- The long lifetime of the analyzer coupled with the minimal level of maintenance results in a low cost of ownership

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

Push button Automatic calibration; automatically adjusts response

Autozero for PID; Automatically injects zero gas & adjusts auto zero for FID

PID- lamp out alarm; FID-flame outshuts off hydrogen and provides alarm

RS232 digital output; 0-1 VDC analog output

Up to 6 dual setpoints that are programmable- can be used to shut down a process, remotely dial a number

Ranges_ ppm 0-50, 0-5,000 0-5,000

_ ppb 0-5,000 ppb, 0-50 ppm, 0-500

SPECIFICATIONS, APPLICATIONS, OPTIONS & SAMPLING SYSTEMS

Specifications

Detectors available: PID & FID

Measurement mode: Continuous

Zero drift- Automatic compensation; <1% per month

Span drift- Auto cal each 24 hours (with contact closure), may require manual set of span: less than 1% every 24 hours

Wide range of response-from sub ppm on PID to % on the FID

Support gases: PID requires no support gases; FID requires H2 and zero air

Readout- Backlit LCD Display with 11 character keyboard



Standard output: 5 VDC, RS232

Enclosure:Rack (NEMA 2)-

Rack: 19" W x 11"H x 15"D

Weight: 22 pounds PID

24 pounds FID

Wall (NEMA 4)

23"W x 21"H x 7"D- PID

27"W x 21"H x 10"D- FID

Weight: -27 pounds PID

- 24 pounds FID

Power requirements- 100-240VAC, 1 amp

PID and FID Range

PID range - 0.1 to 5,000 ppm (higher levels can be detected via a dilution system hydrocarbons > C4 plus, VOC's, inorganicspecies such as H2S, NH3, I2, PH3, AsH3, etc.

FID Range- 1- 200,000 ppm

VOC's (hydrocarbons) only

The 201 PLC with outputs is shown below:



Options

4-20 mA output; ppb Range, MODBUS,

Single alarm setpoint- Customer Programmable

Data storage inASCII format using 8 GByte USB memory stick -more than a year of data

X Proof- explosion proof enclosure

Z purged for Zone 1 and Zone 2 respectively

Calibration gas and regulations for any of the gases at various levels- Contact PID Analyzers

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 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. We also offer heat exchangers and heated sample lines for other types of samples.



New Features, Data Collection Software, Multipoint

New Features

- ☒ 4 line x 20 character backlit LCD display
- * 4 Analog to digital converters- up to 4 sensors can be added instead of two
- * Inputs from other sensors (like flow) can be added to produce a total emissions analyzer
- * Up to three ranges now 0-100, 0-1,000, 0-5,000 ppm all of which are linear
- * 11 character keyboard
- * 4 function keys for programming
- * RS232 & RS485 are standard items
- * Direct internet connection
- * Digital inputs/outputs increased to 12
- * Alarms
- * LEDs for indicating modes
- * Summary on the 4 LED indicators when they are ON:
 - * F4-LED indicates that the automatic saving the data is active;
 - * LED1 shows Cooler pump ON;
 - * LED2 shows that autozero is in progress;
 - * LED3 shows the sample pump ON;
 - * LED4 indicates the gain position
- * **Optional** internal storage of Data for more than 1 year of continuous operation-data stored in ASCII format for direct importing into EXCEL
- * Optional Peltier cooler can be added to remove moisture
- * 19" Rack Mount or optional NEMA 4 enclosure
- * Optional Z purge to meet Class 1 DivII standards

Optional Temperature control: heating/cooling for outdoor installations

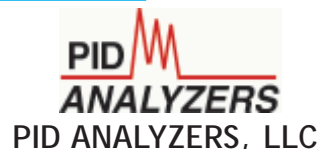
Multipoint Sequencer

The 201-C has several multipoint options The first is a simple **2 point system** that can be used to monitor the input and output of a scrubber, carbon bed etc. to determine the efficiency of the system. This 201-B has a two channel display; one for each channel. The second option is a **4, 8, 12, 16, 24 or 32** point system. This system employs a manifold with a needle valve and a 3 way valve for each channel. This version has a three channel display. One channel is for the concentration, the second is for the channel # and the third is for the same flow for that channel. The flow is measured with a mass flow sensor. The setpoint for the flow channel can be set to indicate a low flow or blockage for a channel. An alarm can be programmed for each channel in the system. This system provides an inexpensive alternative to a sensor for each point. The cost of maintaining and/or calibrating this single system is considerably less expensive than maintaining a 16 or 24 sensor system. The multipoint system can be interfaced with DataWorks, a PLC or DCS system that is already at the Plant.

Data collection in ASCII format stored on an 8 GByte memory stick

Additional Features

Contact PID Analyzers, LLC



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