Accurate. Reliable. Cost Effective.

Emissions Monitoring for Compliance & Process Improvement

UNISEARCH ASSOCIATES INC

www.unisearch-associates.com

LasIR™ Laser-based Cross-stack Gas Monitor For US-EPA & TÜV Compliance, Fenceline & Process Monitoring

NH_3, HCl, O_2, CO, H_2O, HCN, H_2S, CO_2, CH_4, HF, HDO, D_2O, . . .

Features & Benefits

- **TDL** (Tunable Diode Laser) technology for unmatched accuracy & reliability
- **High sensitivity** ppb to percent level measurements
- One analyzer can be used for up to **16 measurement points**
- Performance designed **Process Monitor**
  - **In-situ: Gas sampling/conditioning not required**
  - **Corrosive/toxic applications**
  - **Calibration not required**
  - **Inline/Offline Audit option available**
- Exceeds **US-EPA** CEMS Regulation requirements
  - **MACT & MATS - PS-18** Compliant
  - **Boiler MACT** O_2 and CO Compliance
  - Approved Zero & Span Calibration checks
- **Extremely Fast** (<1 second) response time
- Compact and **simple** to install
- Ambient conditions from **-40⁰ to 70⁰ C**
- Operates in **high dust/moisture** applications
- **Unaffected** by stack/duct alignment changes
- **Laser located in controller** allowing for simple signal control and diagnostic access
- **Moisture** can be added as a second channel
- **Off Stack/Process** extractive option
- **Hazardous Area** Div I & II options

Product Description

Unisearch LasIR™ **Gas Analyzer** is a continuous monitor designed to measure flue gases for both compliance and process monitoring. The Controller uses a near infrared (NIR) Tunable Diode Laser Absorption Spectrometer System utilizing a single mode laser mounted in a thermoelectric cooler for unsurpassed accuracy and performance. Since the spectral purity of the laser is high and the selected absorption feature is unique, measurements can be made free of interferences from any other gas. The measurements are made either in-situ across the stack or duct in either a single or dual pass design (depending upon the application), open-path or extractive by sampling and flowing the gas through a gas cell. A Windows based software package displays the data on either a Host laptop PC or the client's existing data acquisition system.

Typical Applications:

Power
- HCl: EPA MATS Compliance Monitoring per PS18
- NH_3 & H_2O: Gas Fired Slip Monitoring for Process Control & EPA compliance
- NH_3: Coal Fired slip monitoring for prevention of air preheater fouling & corrosion
- O_2 & CO: Combustion Control and Optimization

Cement
- HCl: EPA PC MACT Compliance Monitoring per PS18
- CO, CO_2, O_2: Process Monitoring

Refining:
- CO, CO_2, O_2, H_2S, NH_3: FCC, SRU, Furnaces & Heaters

Petrochemical:
- HF, H_2S, CO, CO_2, O_2, NH_3, Trace H_2O: SRU, Reform & Cracker

Chemical
- CO, CO_2, O_2, HF, HCl, H_2O, NH_3, HCN: Process gases

Nitric Acid Production
- NH_3

Aluminum Smelters:
- HF in Stack, Open path in Pot rooms, Fence line monitoring

Steel Smelters
- CO, CO_2, O_2, H_2O

Nickel Smelters
- H_2S, CO, CO_2, O_2

Gold Smelters
- HCN

Pulp & Paper
- H_2S

Nuclear Processing
- HF, D_2O, HDO

Incinerators
- HF, HCl, NH_3, O_2, CO, CO_2

Nylon, Carbon fibers, Plastics
- HCN, O_2

Wastewater Treatment
- H_2S, CH_4

Ceramic/Brick
- HF, HCl

Landfill
- H_2S, CH_4, NH_3

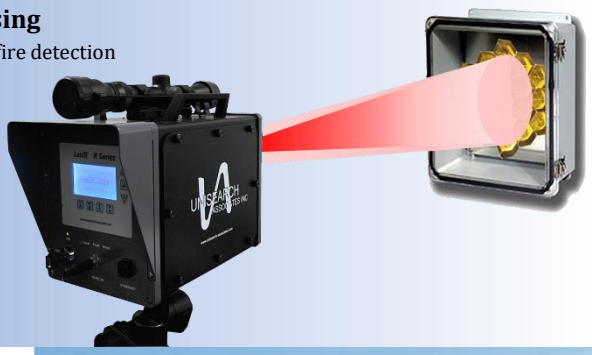
Tobacco Processing
- CO, CO_2 as early fire detection

Airport
- CO, CO_2, O_2

Fertilizer
- HF, NH_3

Pharmaceutical
- HF, HCl, NH_3

Semiconductor
- HF, NH_3, H_2O



Analyzer Specifications:

Laser: NIR Tunable Diode laser
Telecommunication grade lasers for longevity, reliability and availability

Response Time: <1 second

Detection Limits: NH_3 < 0.5 ppm-m / HCl < 0.3 ppm-m / HF <0.1 ppm-m. Consult Factory for other gases

Environmental Conditions:
-10 to +45°C, 5 – 95% RH, 800 – 1,200 mbar

Calibration: Factory Test results sent with every unit
Internal reference cell, external portable audit module, or in-line flow through cell

Gas Temperature & Pressure Compensation Analog Inputs:
4-20 mA for each measurement point

Outputs and Networking:
Minimum two 4-20mA Analog Outputs for each measurement point, Ethernet, Six Dry-Contact NC & NO Status Relays

Dynamic Range: 5 orders of magnitude

Data Logging and Displaying Software:
LasIRView (with Data Review and Statistical Analysis)

Data Storage: Internal storage & External storage via Ethernet or RS232 to an external computer or TCP/IP MODBUS

Power Supply:
Input 100 – 240 VAC @50-60Hz
Output: 12VDC, 60w, *Operating Voltage/Current:* +12 VDC/1A

Analyzer Dimensions (Standard 19" rack-mount):
5.25" (H) x 17" (W) x 11" (D) (13 x 43 x 28 cm)
~11 lb *(~5 kg)*

Stack/Duct Optics:

Base: 12" (H) x 10" (W) x 10" (D) / ~11 lb *(~5 kg)*
NEMA 4x Fiberglass-Composite Enclosure (316SS Enclosure Optional)

Mounting: 4" ANSI (9" OD, Class 150) flanges, additional sizes optional.

Air Purge Requirements: – *depending on conditions*
50 psi @ 25-50 L/min

Environmental Conditions:
Gas: -100 to +1,100 °C, 5-95% RH, 25-2,000 mbar
Optics: -40 to 70°C, 5-95% RH, 25-2,000 mbar
Detector up to 90°C

Available in 2, 4, 8, 12 & 16-channel configurations

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