

Extractive Laser Gas Analyzer

PROCESS, EMISSIONS & AMBIENT MONITORING SYSTEMS

Ideal for applications which require reliable and specific measurements, this gas monitor is suitable for monitoring ppb and ppm concentrations in emissions, ambient air or process monitoring. It uses rapid laser tuning and direct absorption spectroscopy to achieve very stable results.



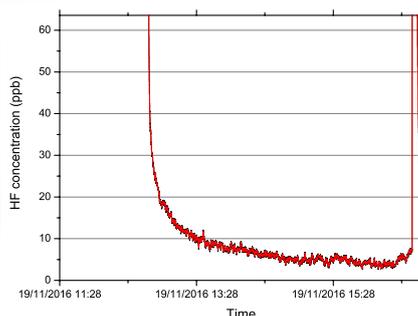
SPECIFIC FEATURES:

- High sensitivity (ppb, ppm concentrations)
- Large dynamic range
- Interference-free gas measurements
- Stable and repeatable measurements
- According to the type of application, the analyzer works with a reduced sample pressure allowing traces levels measurements even in the presence of complex background gas mixtures
- Very robust low-volume multipass cell. The optical pathlength does not change with mirror reflectivity, unlike with long pathlength cavity techniques
- Low maintenance
- Reduced operation cost

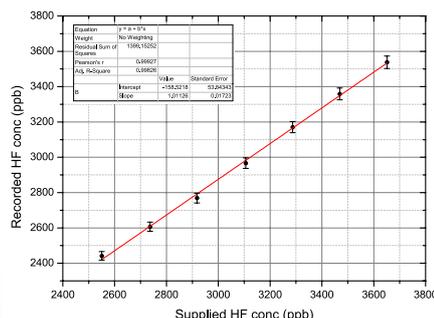
MAIN APPLICATIONS:

- > Ultra low HCl monitoring in Emissions applications (HCl / HF)
- > High purity of gases
- > Semiconductor process
- > Traces monitoring in Ambient air (HCl / HF)

FAST RESPONSE



LINEAR MEASUREMENT



Detection of traces in flue gases or ambient air thanks to the use of an extended optical cavity, tunable laser diode and reduced pressure sampling.

Data for HF in ambient air

Extractive Laser Gas Analyzer **LAS 300 RK**

PRINCIPLE OF OPERATION:

The LAS 300 RK laser gas analyzer measures gas concentrations using tunable diode laser absorption spectroscopy. As the laser frequency is tuned, the intensity of light received by the photodetector varies depending on the concentration of a specific gas present in the sample. The absorption of light follows the Beer-Lambert law.

Each gas absorbs light in a characteristic way. The attenuation of the light over the fixed pathlength is directly proportional to the concentration of the gas species of interest.

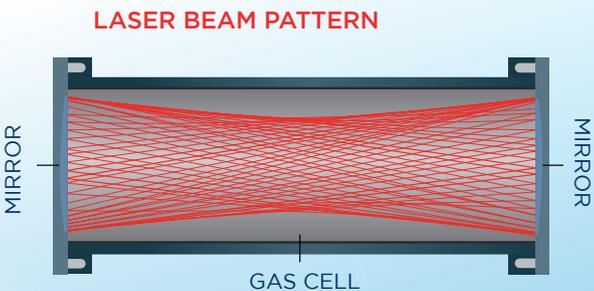
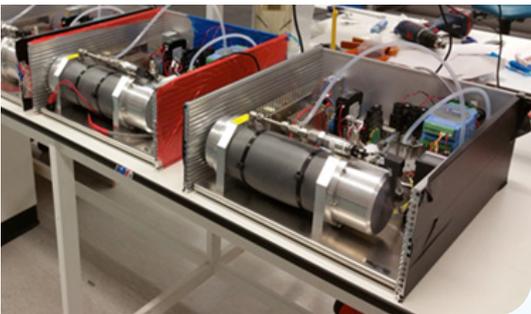
Laser light is reflected back and forth many times through the sample to increase the accuracy of the measurement. The standard TDL multipass cell has a pathlength of 7.6 m.

TECHNICAL SPECIFICATIONS

Measurement range	HCl: 0 - 10 000 ppb HF: 0 - 2000 ppb CO ₂ : 0 - 100%
Lower detection limit	HCl: <0.1 ppb (1 Hz) HF: 1 ppb (1 Hz) CO ₂ : <0.02%
Response time (0-90%)	<20 sec (depending on pump)
Measurement method	Rapid scan, laser absorption, spectroscopy, compact multipass cell, low pressure sampling
Operating temperature	-10°C to +55°C
Storage temperature	-20°C to +60°C
Warm up time	1 min (start), 60 min (with cell heater)
Display	4.3" color touch screen
Power consumption	20 W (without pump), 100-240 V AC, 47-63 Hz
Weight	15 Kg (depending on options)
Gas inlet / outlet connections	1/4" Swagelok®
Cell material	PFA coated aluminium or electropolished SS316 depends on the gas & application
Maintenance period	6 months / 1 year
Enclosure	4U 19" rack
Analyzer laser classification	Classe 1 in accordance with BS EN 60825-1
Coupling Material	PFA or SS316

COMMUNICATION:

- Modbus RTU
- RS232
- 4-20 mA
- 3G gateway remote comms (optional)



REDUCED SAMPLE PRESSURE ADVANTAGES:

Reduced sample pressure within the multipass cell enables direct sampling of the sample gas with minimal sample conditioning. This is because at lower pressure the dewpoint is greatly reduced so no liquid-phase water can form.

Another key benefit of reduced pressure is a more specific measurement. Absorption peaks are narrower so overlapping spectral features are avoided in complex sample gas matrix.

Operation at a reduced pressure is achieved using: a vacuum pump on the outlet of the analyser; a restriction on the inlet via a needle valve; a dynamic pressure control arrangement to ensure uninterrupted operation. Depending on the application, the operating pressure can be 20 to 300 mbar, as reported by the internal pressure gauge connected to the cell.



ENVEA (Headquarters)
111 Bd Robespierre / CS 80004
78304 Poissy CEDEX 4 - FRANCE
☎ +33(0)1 39 22 38 00
✉ info@envea.global

