

eLAS-200 Extractive Laser Analyser



eLAS-200 Laser analyzer is a tunable laser gas analyzer for industrial and environmental on-line gas analysis presented in a 19"-3U or 4U enclosure. The analyzer implements the Tunable Diode Laser Absorption Spectroscopy (TDLAS) technique that can be combined in option to a multiple return optical path chamber technology to extend the optical path length up to 25m to improve the detection limit when needed by the process conditions. These solutions offers a reliable and accurate analysis of various gases in several ranges.

Main features

- No interferences from background gases, water vapor or dust.
- High selectivity and accuracy
- multiple return optical path chamber design improving the detection limit when needed by the process conditions.
- Optical, contact-less measurement
- Fast response time (TD_{90} : < 2 to 5s)
- No optical moving parts, high reliability, not affected by field vibration.
- All parts exposed to the sample gas are made of corrosion-resistant material
- Low maintenance costs
- MTBF of the laser source ≥ 7 to 10 years

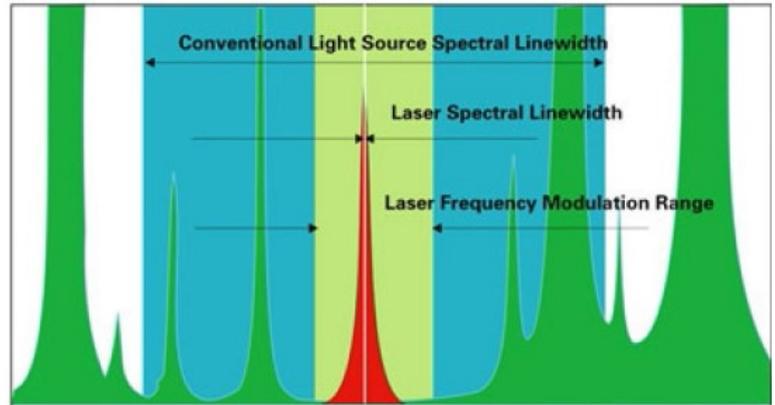
Gas Lower measurement range

| | |
|-------------------------------|------------|
| O ₂ | 0-1% |
| CO | 0-1000 ppm |
| CO ₂ | 0-1000 ppm |
| H ₂ O | 0-100 ppm |
| HCl | 0-50 ppm |
| HF | 0-20 ppm |
| NH ₃ | 0-100 ppm |
| H ₂ S | 0-100 ppm |
| CH ₄ | 0-200 ppm |
| C ₂ H ₂ | 0-50 ppm |
| C ₂ H ₄ | 0-100 ppm |

The eLAS-200 laser analyser is available for

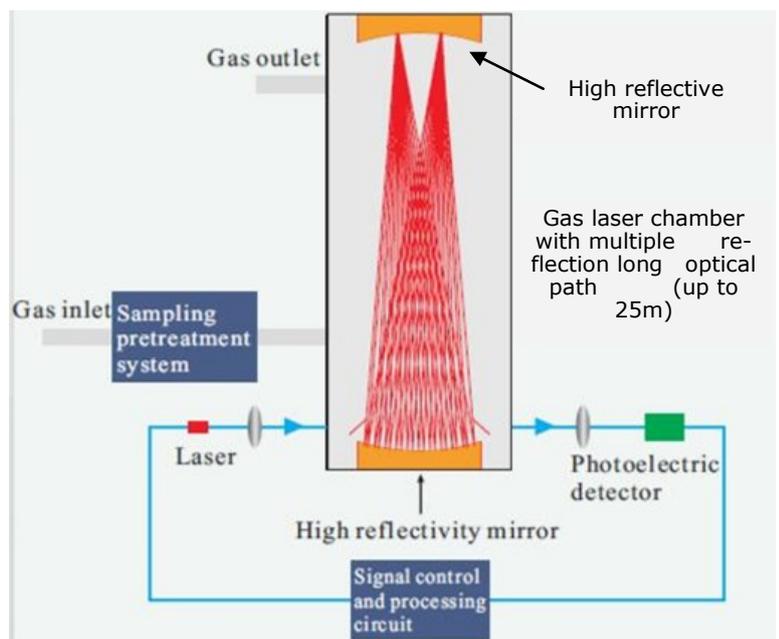
- **Cold and dry measurement** of CH₄, C₂H₂, C₂H₄, CO₂, CO, O₂ and H₂S
- **Hot and wet measurement** of NH₃, HCl HF and H₂O with the laser cell heated @190°C.

We have a suitable solution for each of your applications. Please consult us.



The TDLAS technology can justify different absorption lines with a gap of 0.1nm offering a spectral resolution about 1000 times sharper than the wavelength filtering capability of the interference filter used by traditional NDIR detectors.

The laser gas analyzer scans the specific absorption lines of the target gas to get the second harmonic of the gas, or selects an absorption line of the target gas 10 times sharper than the absorption lines width of background gases, enabling accurate and reliable measurements without interferences from background gases, water vapor or dust.



The transmitter drives the tunable diode to emit a laser light of certain wavelengths, which passes through the gas cell, then reaches the receiver. The receiver performs the signal processing to obtain the 2nd harmonic signal, then calculates the concentration according to the relationship between the 2nd harmonic signal and the gas concentration.

Technical specifications

Some applications of TDLAS Laser analysers

- Highly Sulphur loaded biogas analysis (H₂S %vol)
- Natural gas and Biomethane quality control (CH₄)
- Sulphur removal and Recovery Unit (H₂S %vol)
- Sulphuric acid production plants (H₂S %vol)
- Emissions control in Landfills and wastewater plants (NH₃, H₂S)
- NH₃ in biogas CO₂ amine scrubbing
- GHG (CH₄, CO₂) emissions/carbon certificate trading
- Combustion process regulation (CO, O₂) in coal, cement and steel plants
- Emissions monitoring (NH₃, HCl, HF) in refinery fuel gas, iron/steel plants, power stations, waste incinerations,...)
- NH₃-slip measurements in Selective Catalytic Reduction (SCR) DeNOx installations (diesel engines, power plants)
- Emission control in livestock farming (NH₃)
- Industrial refrigeration for beverage & food production (NH₃)
- Chemical industry for Ammonia, Fertilizer & Plastics production, Pharmaceutical industry (NH₃),...

Principle of detection

Tunable Diode Laser Absorption Spectroscopy (TDLAS)

Multiple return optical path chamber design up to 25m to improve the detection limit when needed by the process conditions

Cell type

Flow-through measurement cell with multiple reflection optical path

Gas path material

Wetted parts: SS316, glass or PTFE; internal tubing in PTFE (SS316 in option)

Display resolution

Function of the range: from 0.01 to 1 ppm and from 0.001% to 0.01%

Linearity error Repeatability

≤±1% F.S.

Repeatability

≤1%

Zero and Span drift

≤±1%F.S./6 months

Maintenance Cycle

≤2 times/year (clean optical windows)

Calibration Cycle

≤2 times/year (or automatic calibration)

Response time (T_D + T₉₀)

≤ 2 to 5 sec @ nominal gas flow rate of 1.5 ±0.5 L/min

Warm up time (from Tamb 25°C)

30 minutes (45 minutes for the heated version)

User calibration

zero and span (90 to 100% of F.S.)

Inlet gas pressure

50 to 100 mbar relative

Inlet gas temperature

Cold dry method (gas dew point ≤+4°C): +50°C max. with unheated laser cell
Hot wet method: 190°C with the heated laser cell

Gas quality

Free of particles, tar, oil traces and condensed water vapour

Environmental operation conditions

Use

Indoor only, in non hazardous area

Ambient operation conditions

Temperature: 5 to +50°C
Pressure: 800 to 1100 mbar
Relative humidity: 0-95%, non-condensing

Mechanical specifications

Enclosure

19"- 3U rack or bench enclosure, IP 20

Dimensions and weight

Dimensions (3U) : W483 x D434 x H132mm; Weight: ±15 kg

Display / Keyboard

5" display / tactile keyboard with function buttons

Electrical specifications

Analogue Outputs

2×4-20mA (isolation, max load 750Ω)

Analogue Inputs

2×4-20mA, for temperature and pressure compensation

Relay outputs

3x (24VDC-1A)

Digital communication

RS232/RS485

Power supply

100-240VAC - 50/60Hz - 150 W

EMC Immunity

According to EN/IEC 61326-1

Non contractual pictures and specifications - subject to change without prior notification - Issue -EN17v1



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